FIG.1

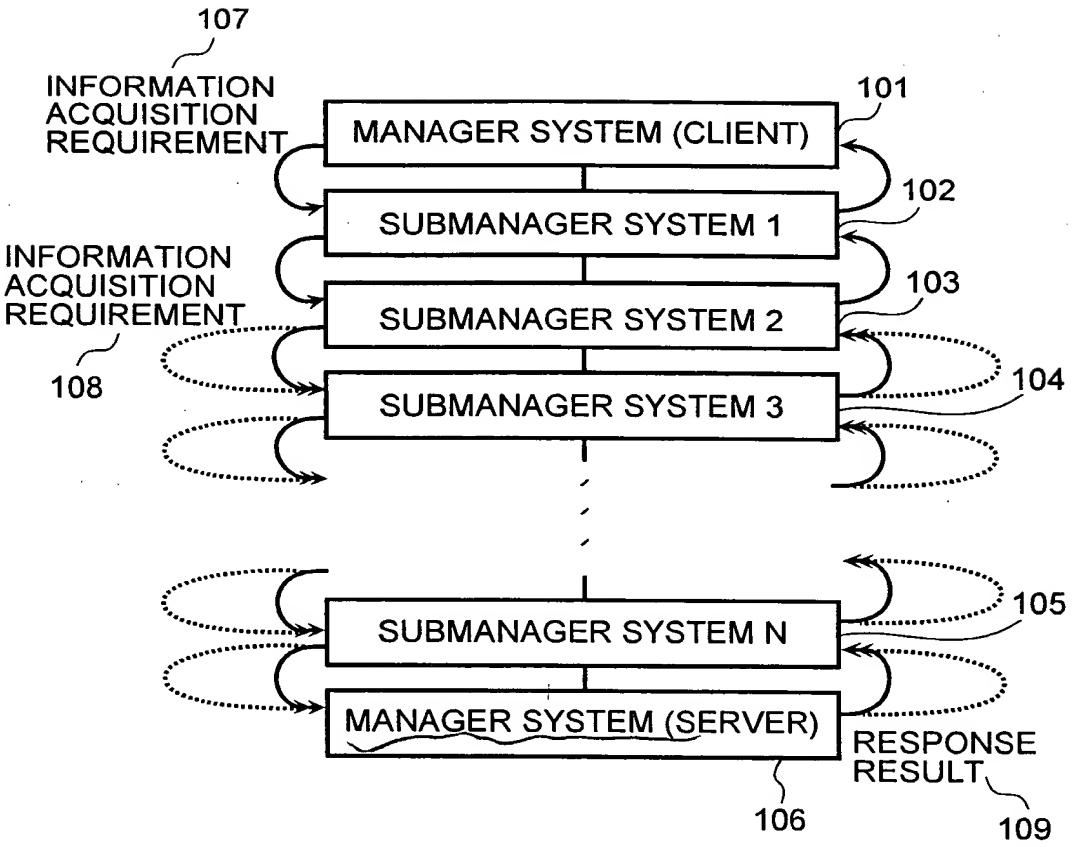

107
INFORMATION ACQUISITION REQUIREMENT
101
MANAGER SYSTEM (CLIENT)
102
SUBMANAGER SYSTEM 1
INFORMATION ACQUISITION REQUIREMENT
103
SUBMANAGER SYSTEM 2
108
104
SUBMANAGER SYSTEM 3
105
SUBMANAGER SYSTEM N
MANAGER SYSTEM (SERVER)
RESPONSE RESULT
106
109

FIG.2

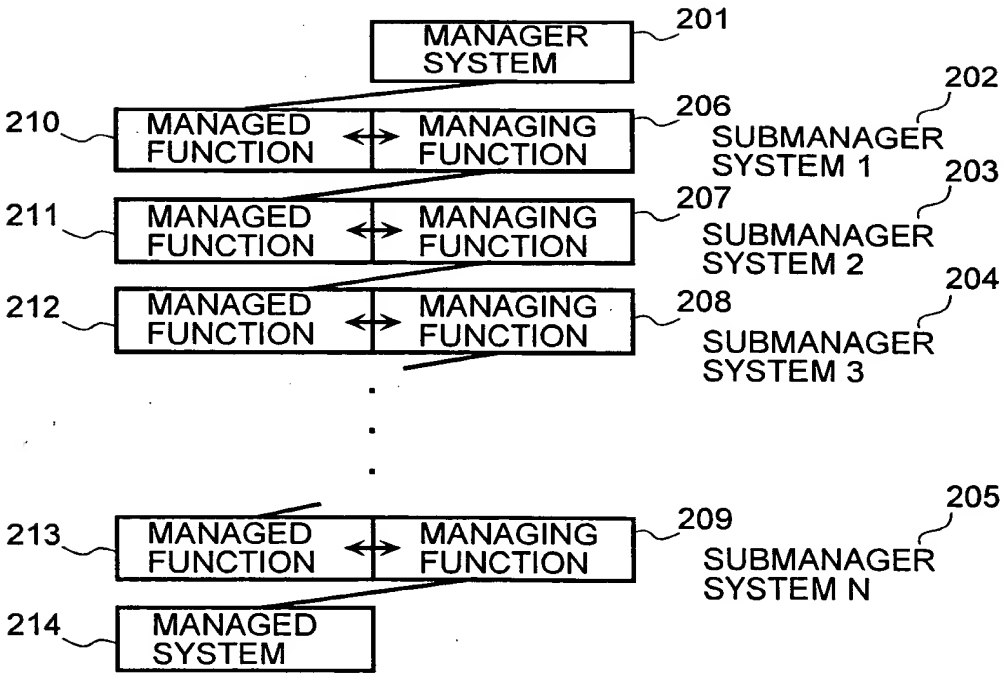

MANAGER SYSTEM
201
202
206
SUBMANAGER SYSTEM 1
203
207
SUBMANAGER SYSTEM 2
204
208
SUBMANAGER SYSTEM 3
205
209
SUBMANAGER SYSTEM N
210
MANAGED FUNCTION
MANAGING FUNCTION
211
MANAGED FUNCTION
MANAGING FUNCTION
212
MANAGED FUNCTION
MANAGING FUNCTION
213
MANAGED FUNCTION
MANAGING FUNCTION
214
MANAGED SYSTEM

FIG.3

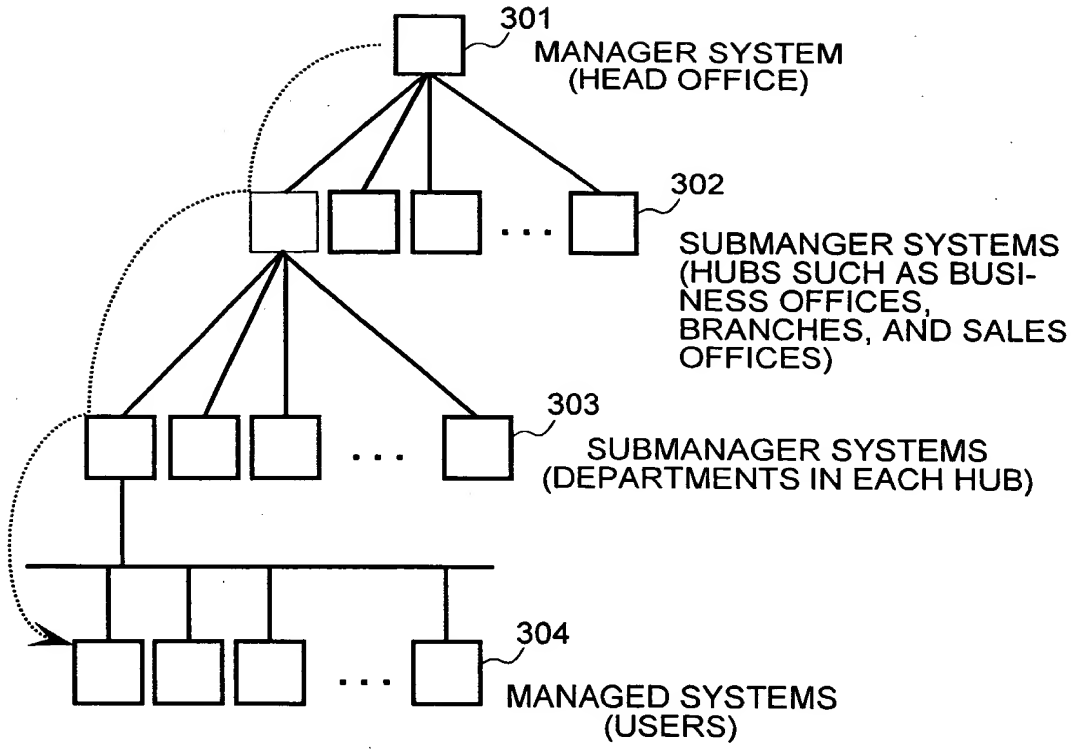

301
MANAGER SYSTEM
(HEAD OFFICE)
302
SUBMANGER SYSTEMS
(HUBS SUCH AS BUSI-
NESS OFFICES,
BRANCHES, AND SALES
OFFICES)
303
SUBMANAGER SYSTEMS
(DEPARTMENTS IN EACH HUB)
304
MANAGED SYSTEMS
(USERS)

FIG.4

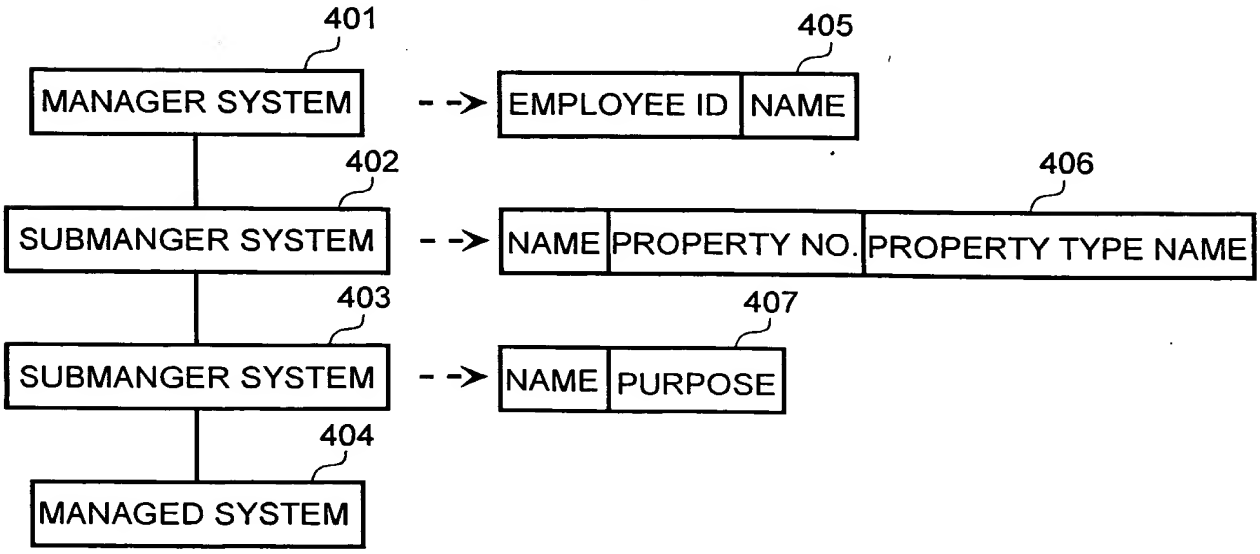

401
MANAGER SYSTEM
405
EMPLOYEE ID
NAME
402
SUBMANGER SYSTEM
406
NAME
PROPERTY NO.
PROPERTY TYPE NAME
403
SUBMANGER SYSTEM
407
NAME
PURPOSE
404
MANAGED SYSTEM

FIG.5

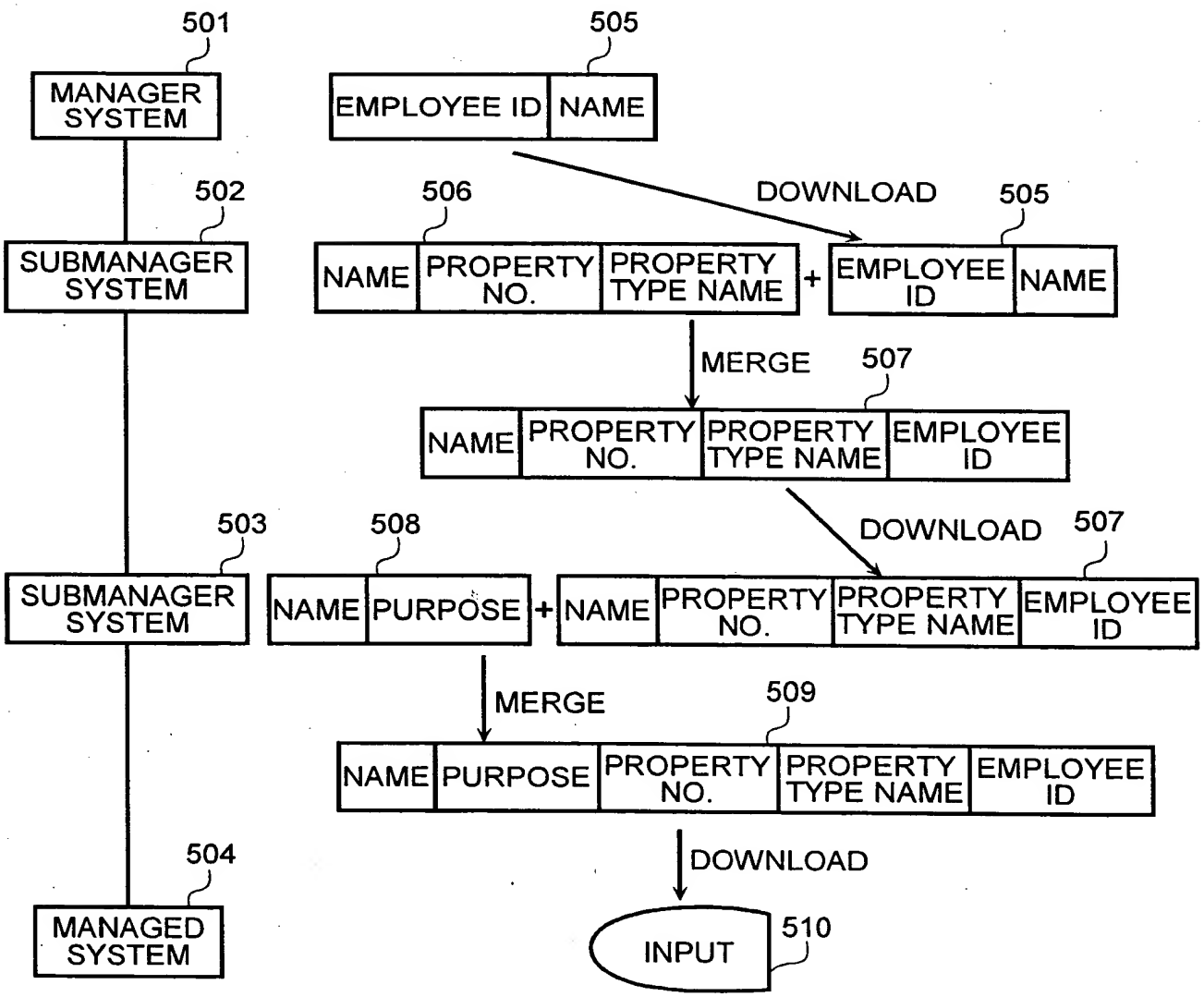

501
MANAGER SYSTEM
502
SUBMANAGER SYSTEM
503
SUBMANAGER SYSTEM
504
MANAGED SYSTEM
505
EMPLOYEE ID
NAME
DOWNLOAD
506
NAME
PROPERTY NO.
PROPERTY TYPE NAME
+
EMPLOYEE ID
NAME
505
MERGE
507
NAME
PROPERTY NO.
PROPERTY TYPE NAME
EMPLOYEE ID
DOWNLOAD
507
508
NAME
PURPOSE
+
NAME
PROPERTY NO.
PROPERTY TYPE NAME
EMPLOYEE ID
MERGE
509
NAME
PURPOSE
PROPERTY NO.
PROPERTY TYPE NAME
EMPLOYEE ID
DOWNLOAD
INPUT
510

FIG.6

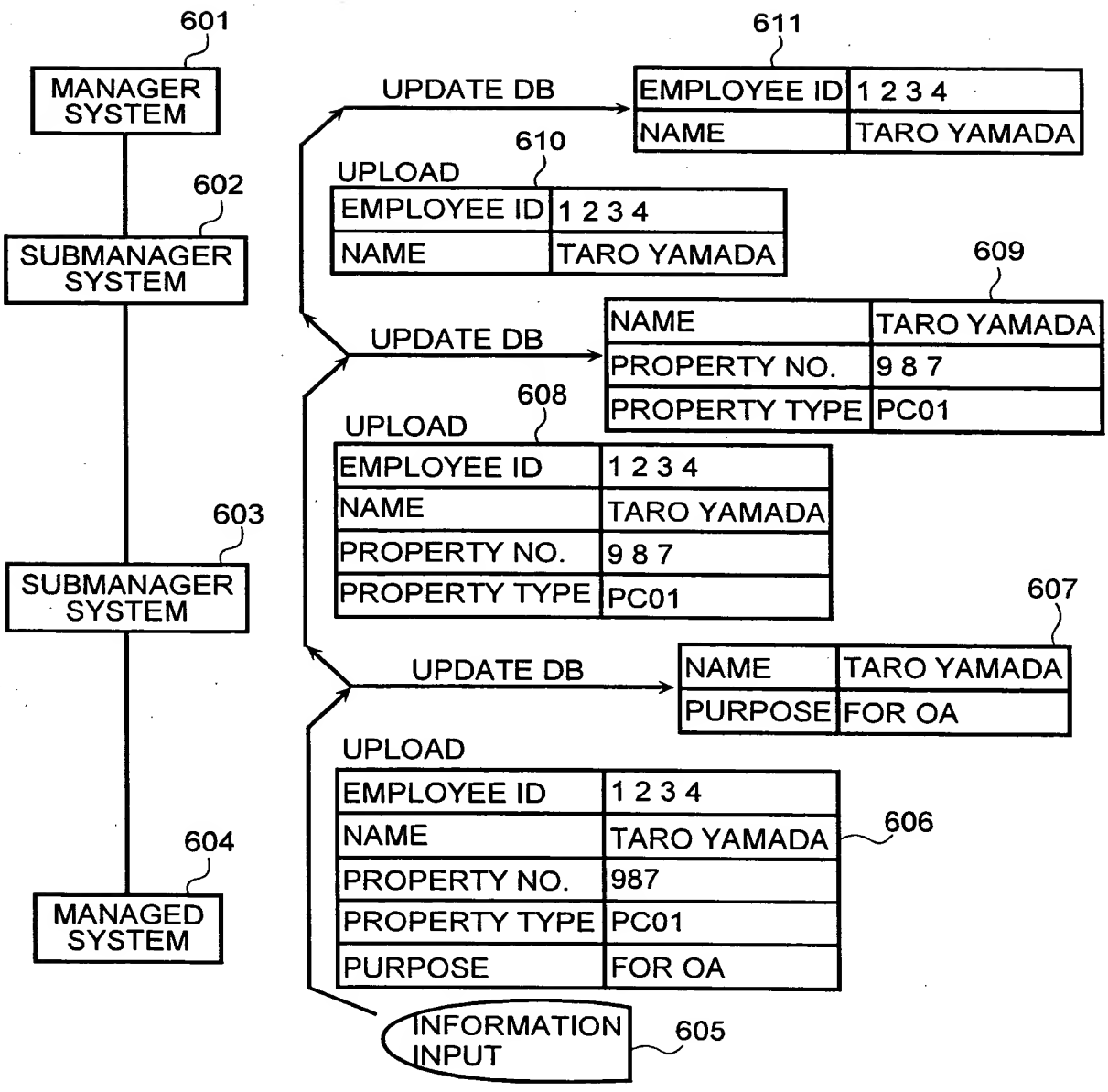

601
MANAGER SYSTEM
602
SUBMANAGER SYSTEM
603
SUBMANAGER SYSTEM
604
MANAGED SYSTEM
611
UPDATE DB
EMPLOYEE ID 1 2 3 4
NAME TARO YAMADA
610
UPLOAD
EMPLOYEE ID 1 2 3 4
NAME TARO YAMADA
609
UPDATE DB
NAME TARO YAMADA
PROPERTY NO. 9 8 7
PROPERTY TYPE PC01
608
UPLOAD
EMPLOYEE ID 1 2 3 4
NAME TARO YAMADA
PROPERTY NO. 9 8 7
PROPERTY TYPE PC01
607
UPDATE DB
NAME TARO YAMADA
PURPOSE FOR OA
UPLOAD
EMPLOYEE ID 1 2 3 4
NAME TARO YAMADA
PROPERTY NO. 987
PROPERTY TYPE PC01
PURPOSE FOR OA
606
INFORMATION INPUT
605

FIG.7

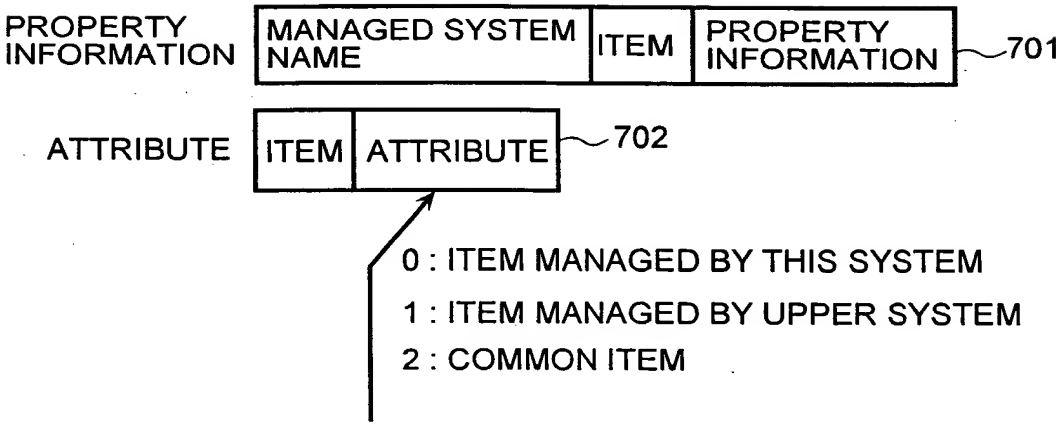

PROPERTY INFORMATION
MANAGED SYSTEM NAME
ITEM
PROPERTY INFORMATION
701
ATTRIBUTE
ITEM
ATTRIBUTE
702
0 : ITEM MANAGED BY THIS SYSTEM
1 : ITEM MANAGED BY UPPER SYSTEM
2 : COMMON ITEM

FIG.8

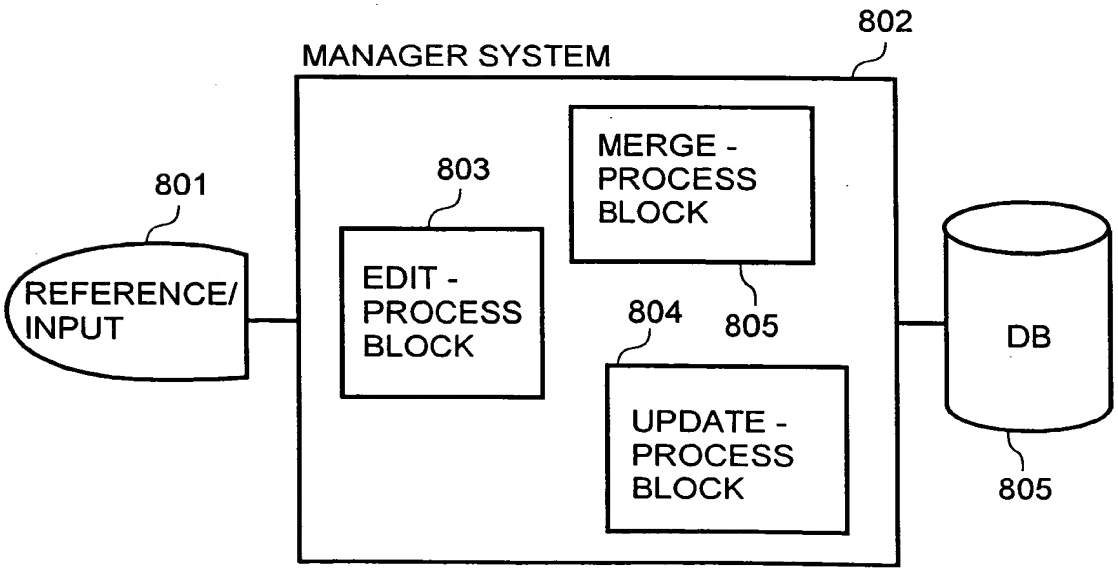

802
MANAGER SYSTEM
801
803
MERGE - PROCESS BLOCK
REFERENCE/ INPUT
EDIT - PROCESS BLOCK
804
805
DB
UPDATE - PROCESS BLOCK
805

FIG.9

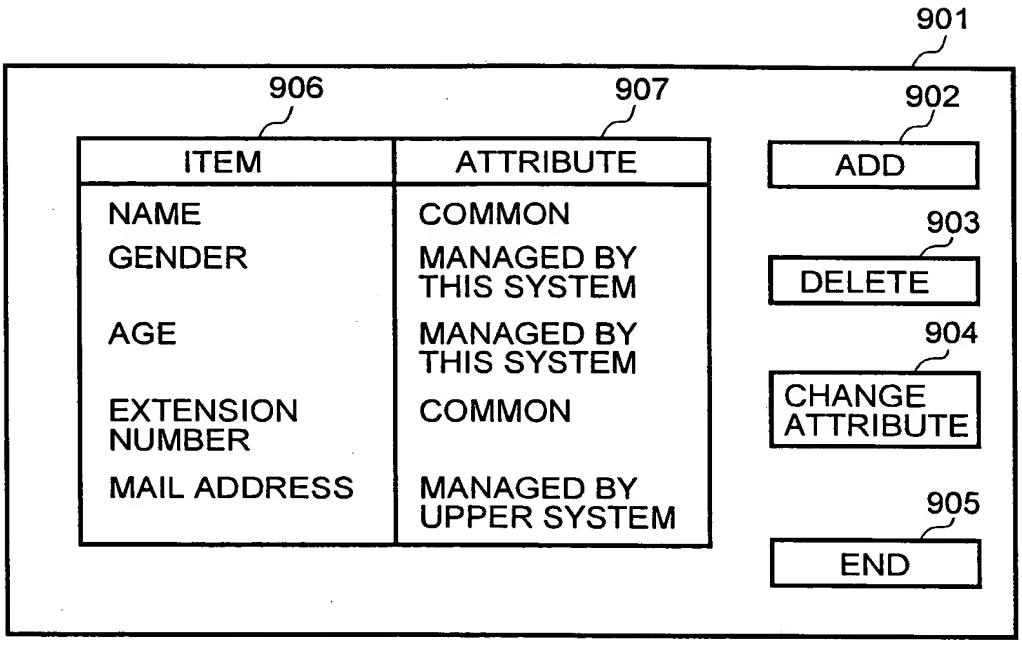

901
906
907
902
ITEM
ATTRIBUTE
ADD
NAME
COMMON
903
GENDER
MANAGED BY THIS SYSTEM
DELETE
AGE
MANAGED BY THIS SYSTEM
904
EXTENSION NUMBER
COMMON
CHANGE ATTRIBUTE
MAIL ADDRESS
MANAGED BY UPPER SYSTEM
905
END

FIG.10

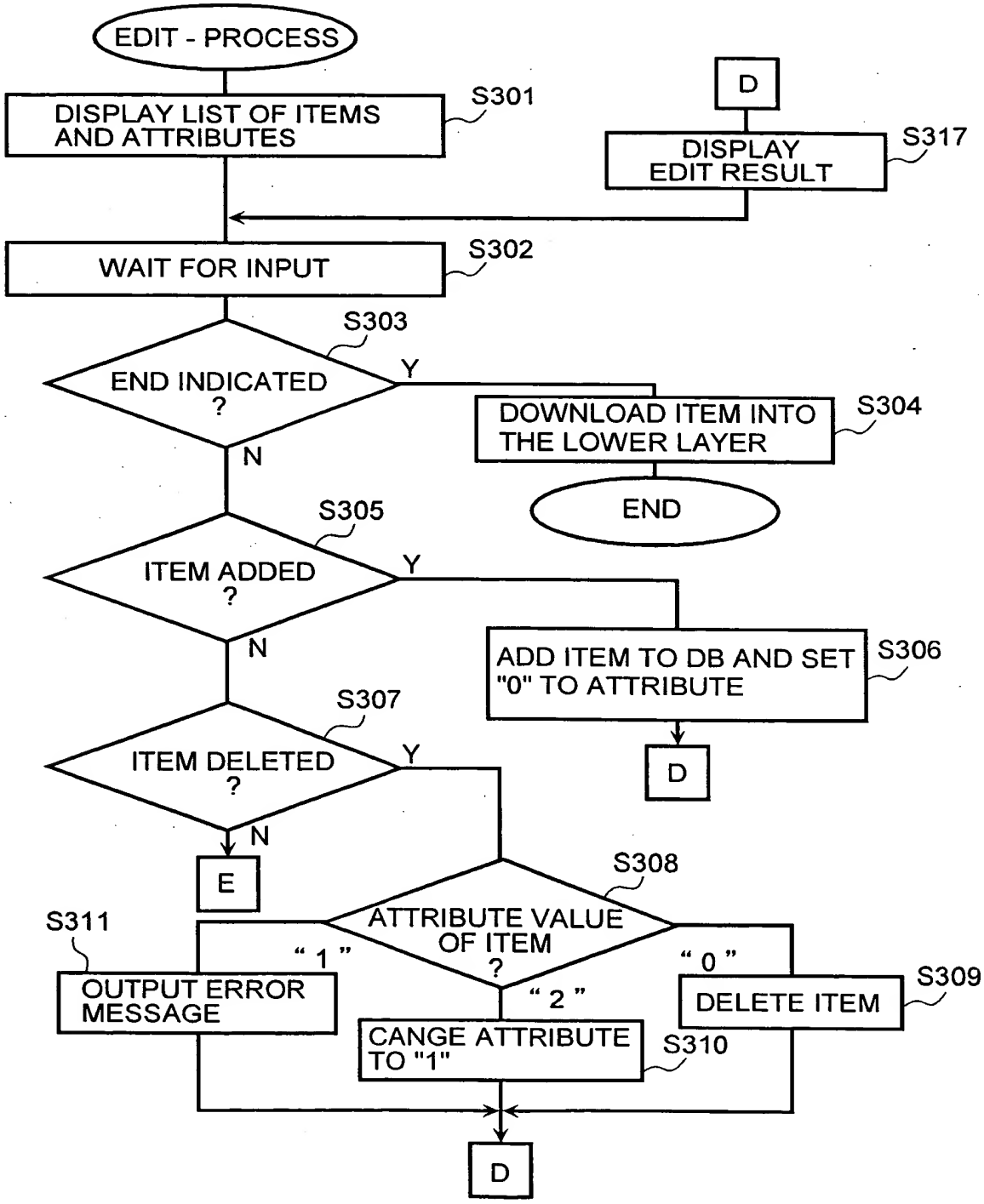

EDIT - PROCESS
DISPLAY LIST OF ITEMS AND ATTRIBUTES
S301
WAIT FOR INPUT
S302
S303
END INDICATED ?
Y
N
DOWNLOAD ITEM INTO THE LOWER LAYER
S304
END
S305
ITEM ADDED ?
Y
N
ADD ITEM TO DB AND SET "0" TO ATTRIBUTE
S306
D
S307
ITEM DELETED ?
Y
N
E
S308
ATTRIBUTE VALUE OF ITEM ?
" 1 "
" 2 "
" 0 "
S311
OUTPUT ERROR MESSAGE
CANGE ATTRIBUTE TO "1"
S310
DELETE ITEM
S309
D
D
S317
DISPLAY EDIT RESULT

FIG.11

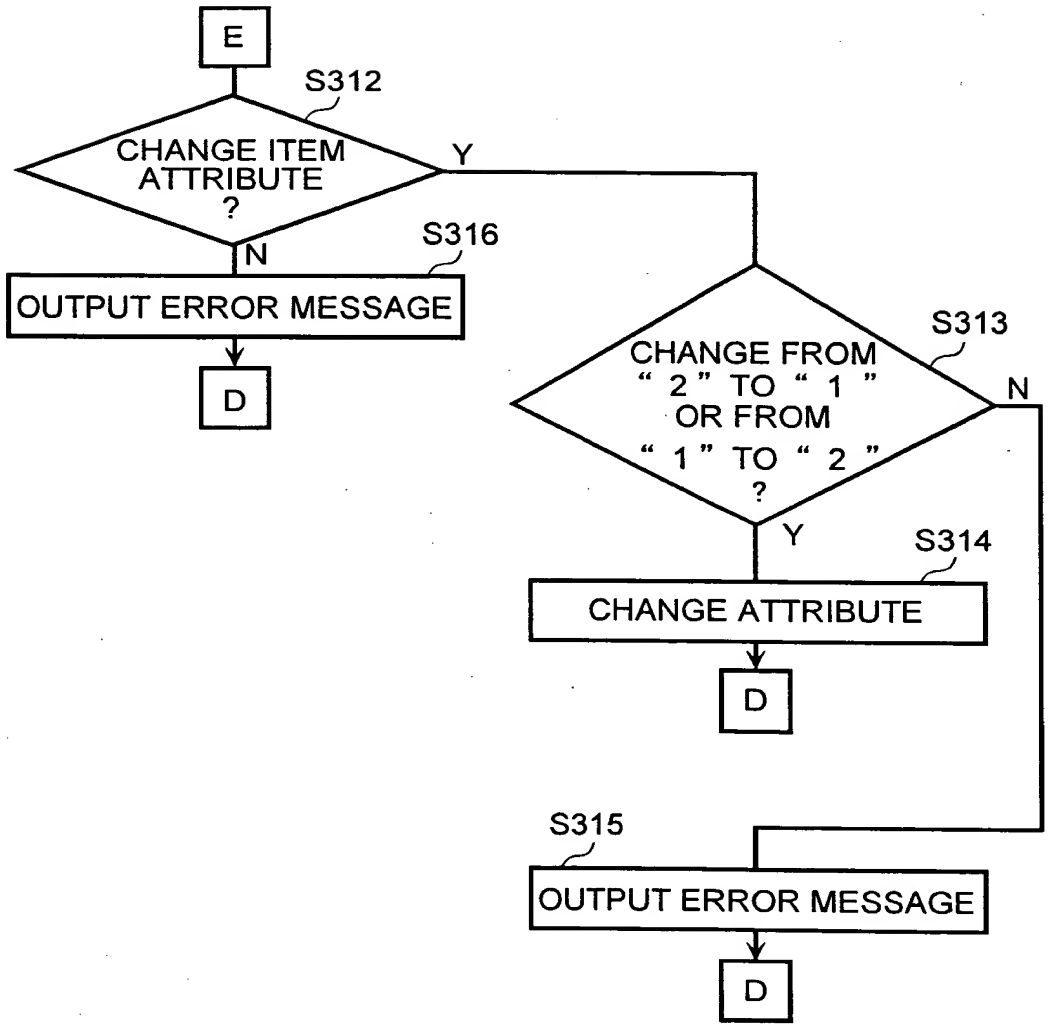

E
S312
CHANGE ITEM ATTRIBUTE ?
Y
N
S316
OUTPUT ERROR MESSAGE
D
S313
CHANGE FROM " 2 " TO " 1 " OR FROM " 1 " TO " 2 " ?
N
Y
S314
CHANGE ATTRIBUTE
D
S315
OUTPUT ERROR MESSAGE
D

FIG.12

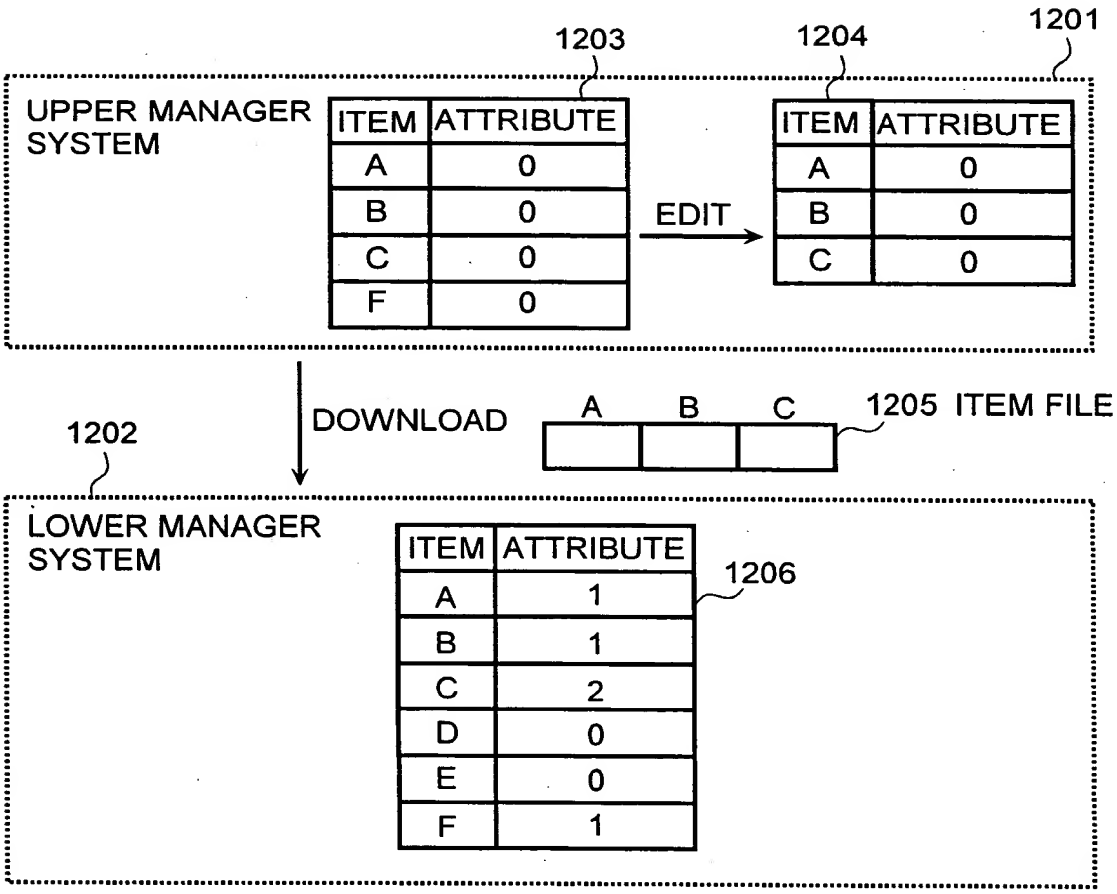

1201
1203
1204
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
F
0
EDIT
ITEM
ATTRIBUTE
A
0
B
0
C
0
DOWNLOAD
A
B
C
1205 ITEM FILE
1202
LOWER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
1
B
1
C
2
D
0
E
0
F
1
1206

FIG.13

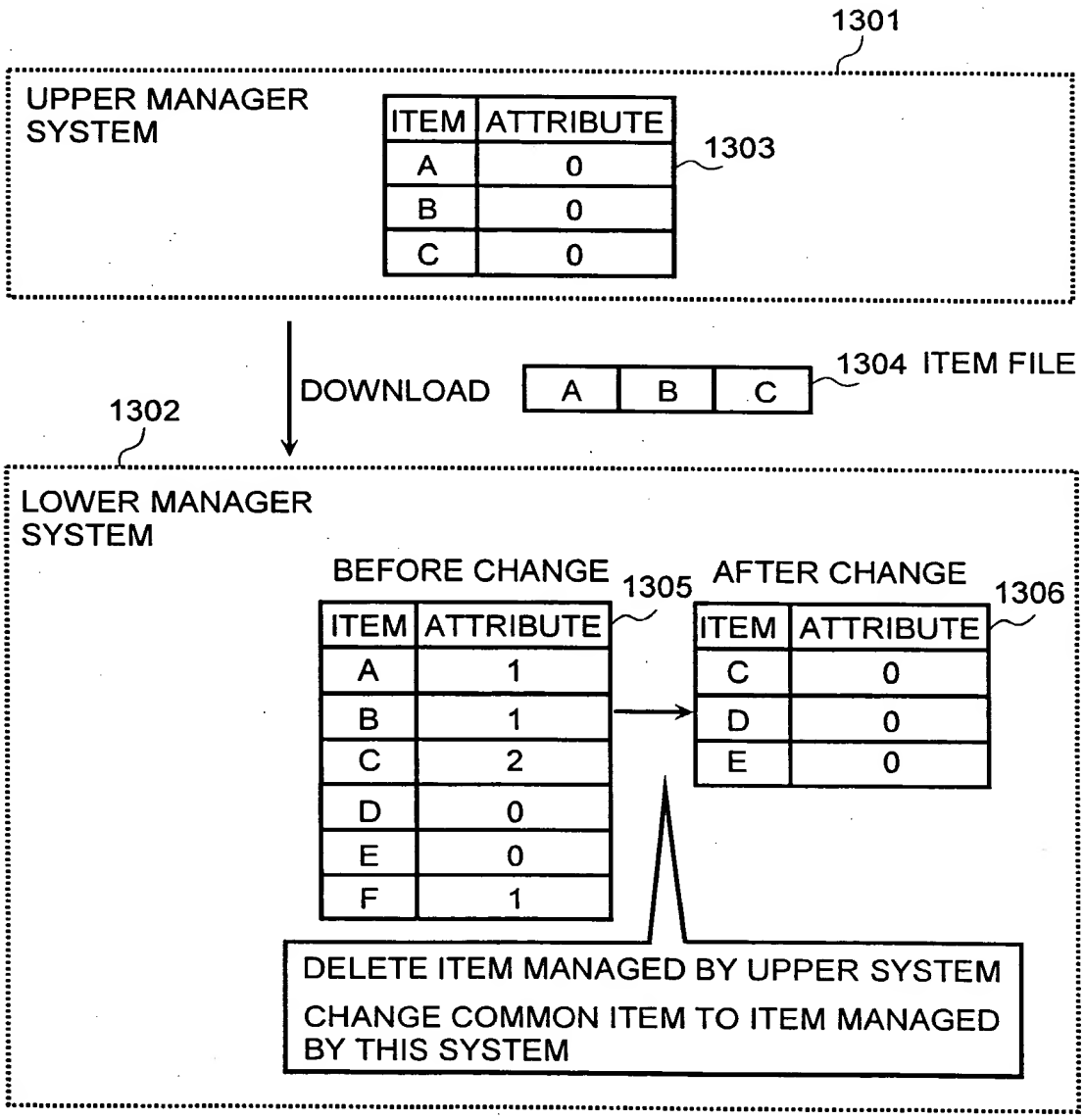

1301
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
1303
DOWNLOAD
A
B
C
1304 ITEM FILE
1302
LOWER MANAGER SYSTEM
BEFORE CHANGE
1305
ITEM
ATTRIBUTE
A
1
B
1
C
2
D
0
E
0
F
1
AFTER CHANGE
1306
ITEM
ATTRIBUTE
C
0
D
0
E
0
DELETE ITEM MANAGED BY UPPER SYSTEM
CHANGE COMMON ITEM TO ITEM MANAGED BY THIS SYSTEM

FIG.14

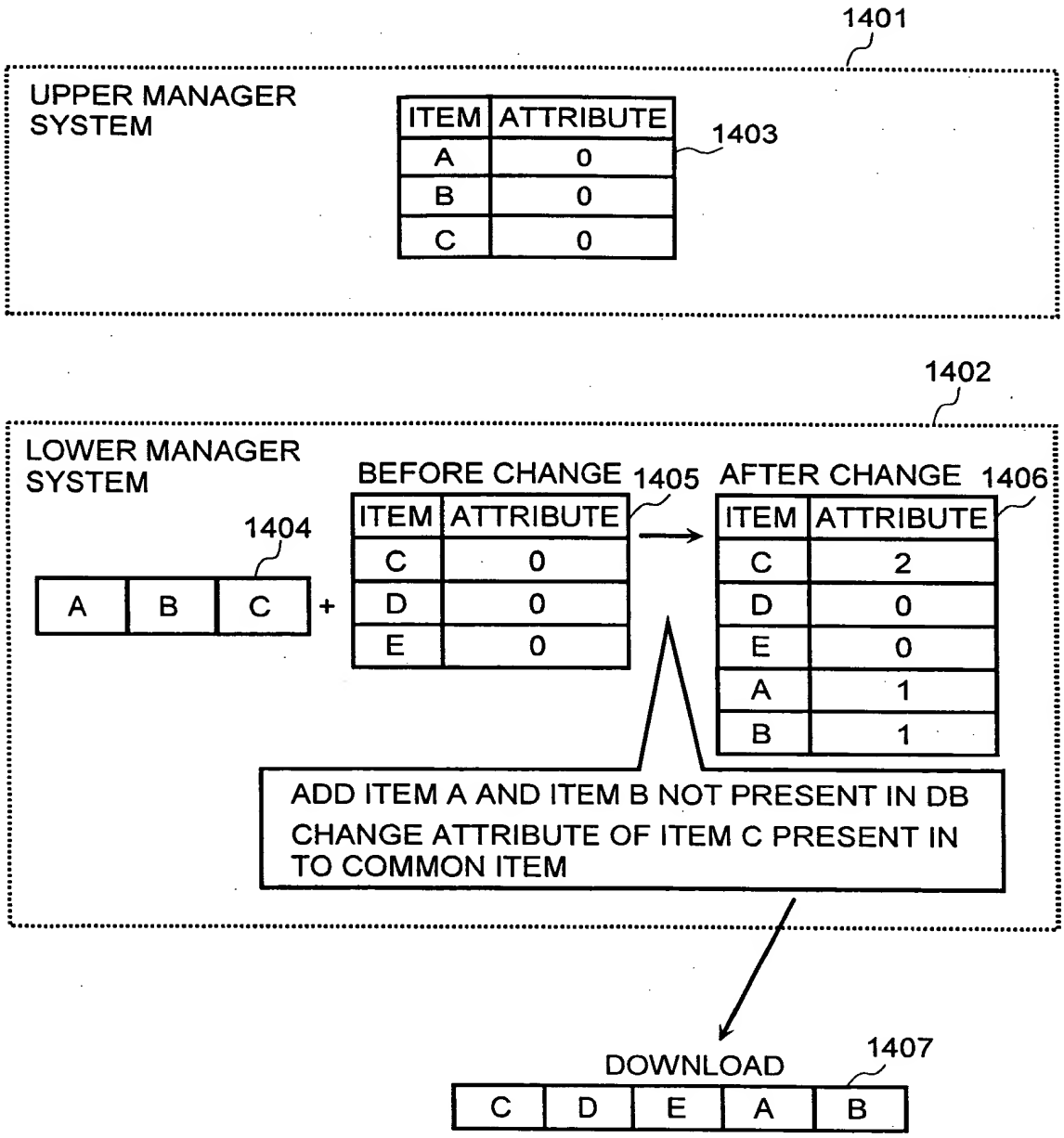

1401
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
1403
1402
LOWER MANAGER SYSTEM
BEFORE CHANGE
1405
AFTER CHANGE
1406
1404
A
B
C
+
ITEM
ATTRIBUTE
C
0
D
0
E
0
ITEM
ATTRIBUTE
C
2
D
0
E
0
A
1
B
1
ADD ITEM A AND ITEM B NOT PRESENT IN DB
CHANGE ATTRIBUTE OF ITEM C PRESENT IN TO COMMON ITEM
DOWNLOAD
1407
C
D
E
A
B

FIG.15

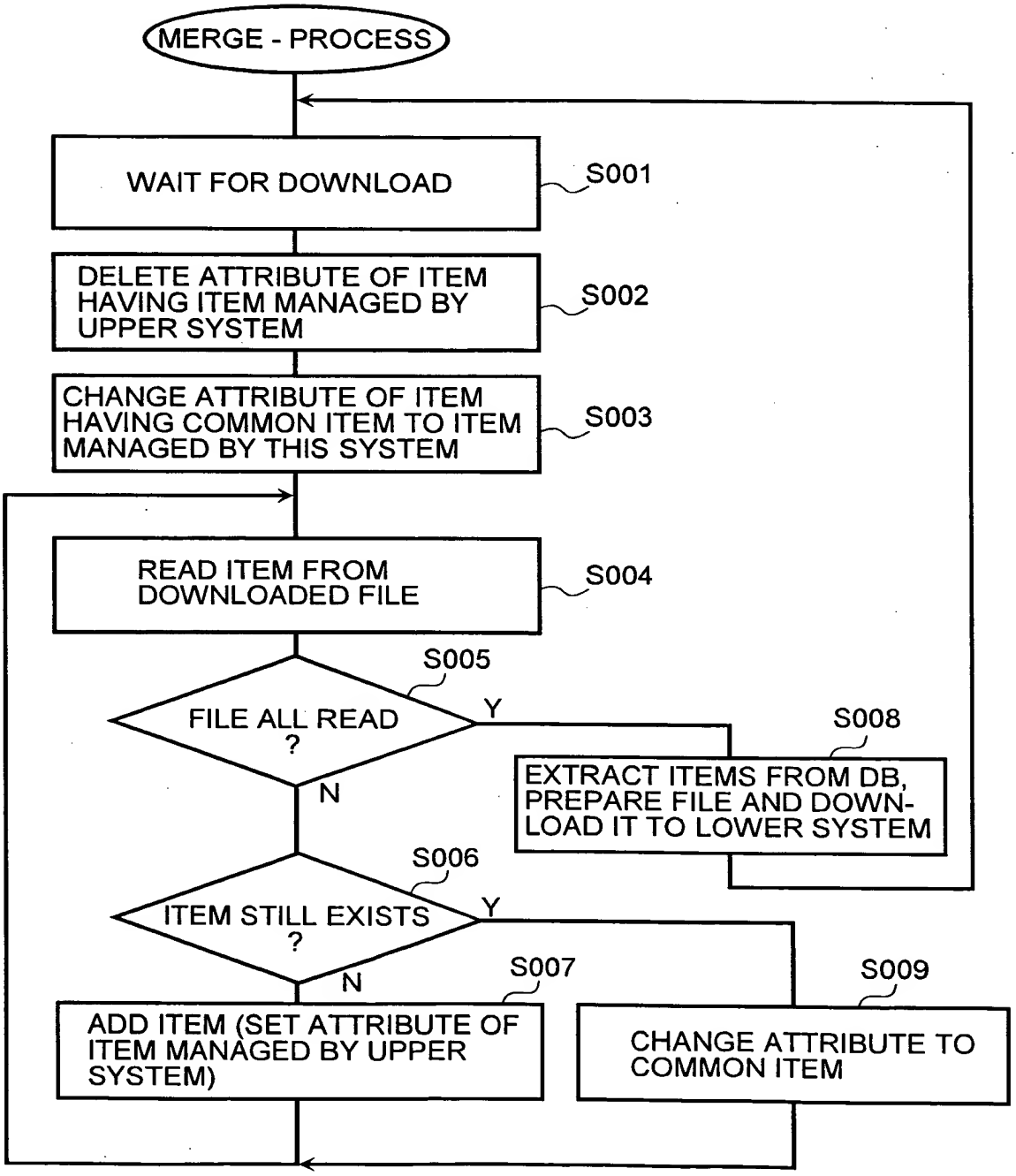

MERGE - PROCESS
WAIT FOR DOWNLOAD
S001
DELETE ATTRIBUTE OF ITEM HAVING ITEM MANAGED BY UPPER SYSTEM
S002
CHANGE ATTRIBUTE OF ITEM HAVING COMMON ITEM TO ITEM MANAGED BY THIS SYSTEM
S003
READ ITEM FROM DOWNLOADED FILE
S004
S005
FILE ALL READ ?
Y
N
S008
EXTRACT ITEMS FROM DB, PREPARE FILE AND DOWN-LOAD IT TO LOWER SYSTEM
S006
ITEM STILL EXISTS ?
Y
N
S007
ADD ITEM (SET ATTRIBUTE OF ITEM MANAGED BY UPPER SYSTEM)
S009
CHANGE ATTRIBUTE TO COMMON ITEM

FIG.16

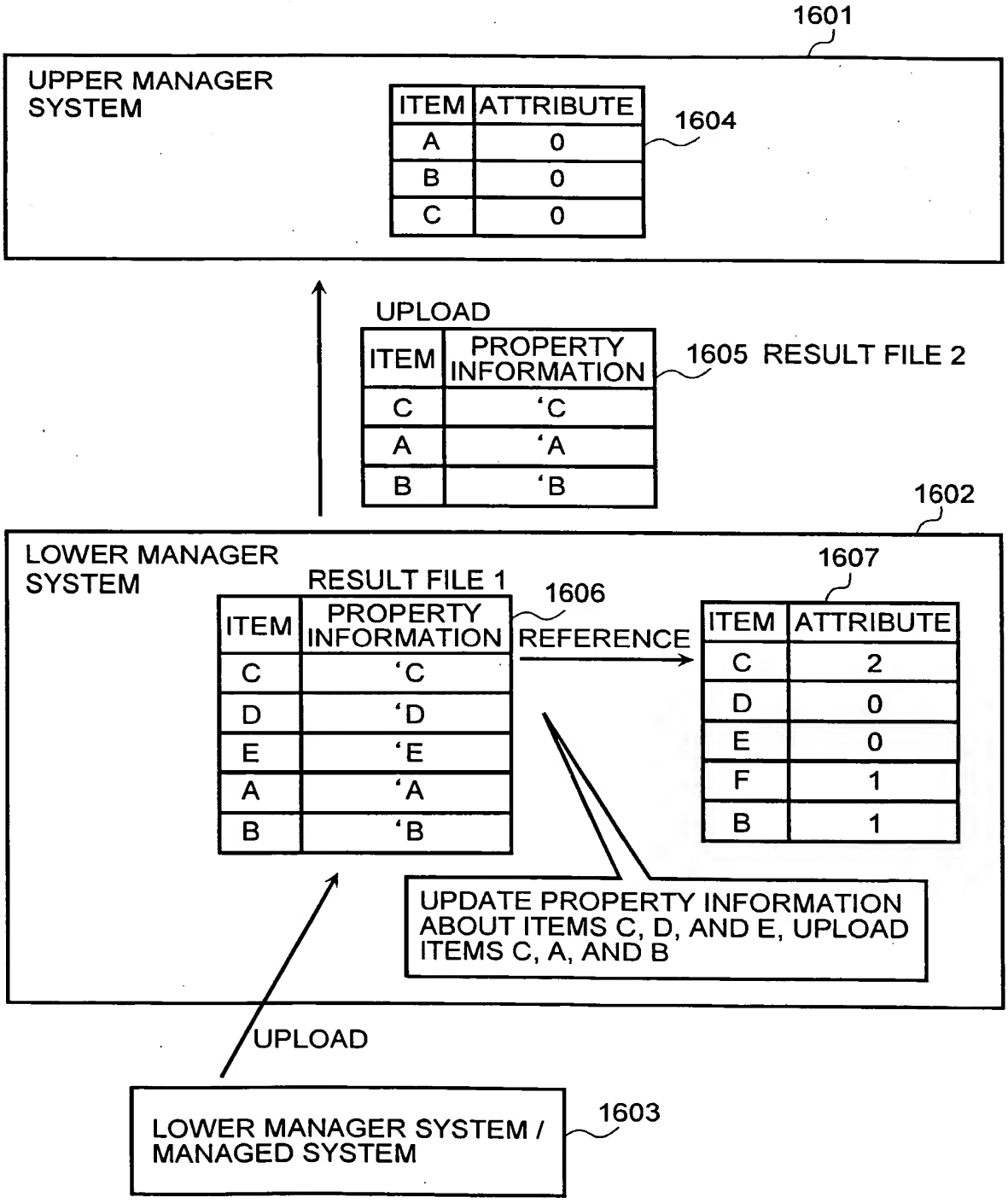

1601
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
1604
UPLOAD
ITEM
PROPERTY INFORMATION
C
'C
A
'A
B
'B
1605 RESULT FILE 2
1602
LOWER MANAGER SYSTEM
RESULT FILE 1
1606
REFERENCE
1607
ITEM
PROPERTY INFORMATION
C
'C
D
'D
E
'E
A
'A
B
'B
ITEM
ATTRIBUTE
C
2
D
0
E
0
F
1
B
1
UPDATE PROPERTY INFORMATION ABOUT ITEMS C, D, AND E, UPLOAD ITEMS C, A, AND B
UPLOAD
LOWER MANAGER SYSTEM / MANAGED SYSTEM
1603

FIG.17

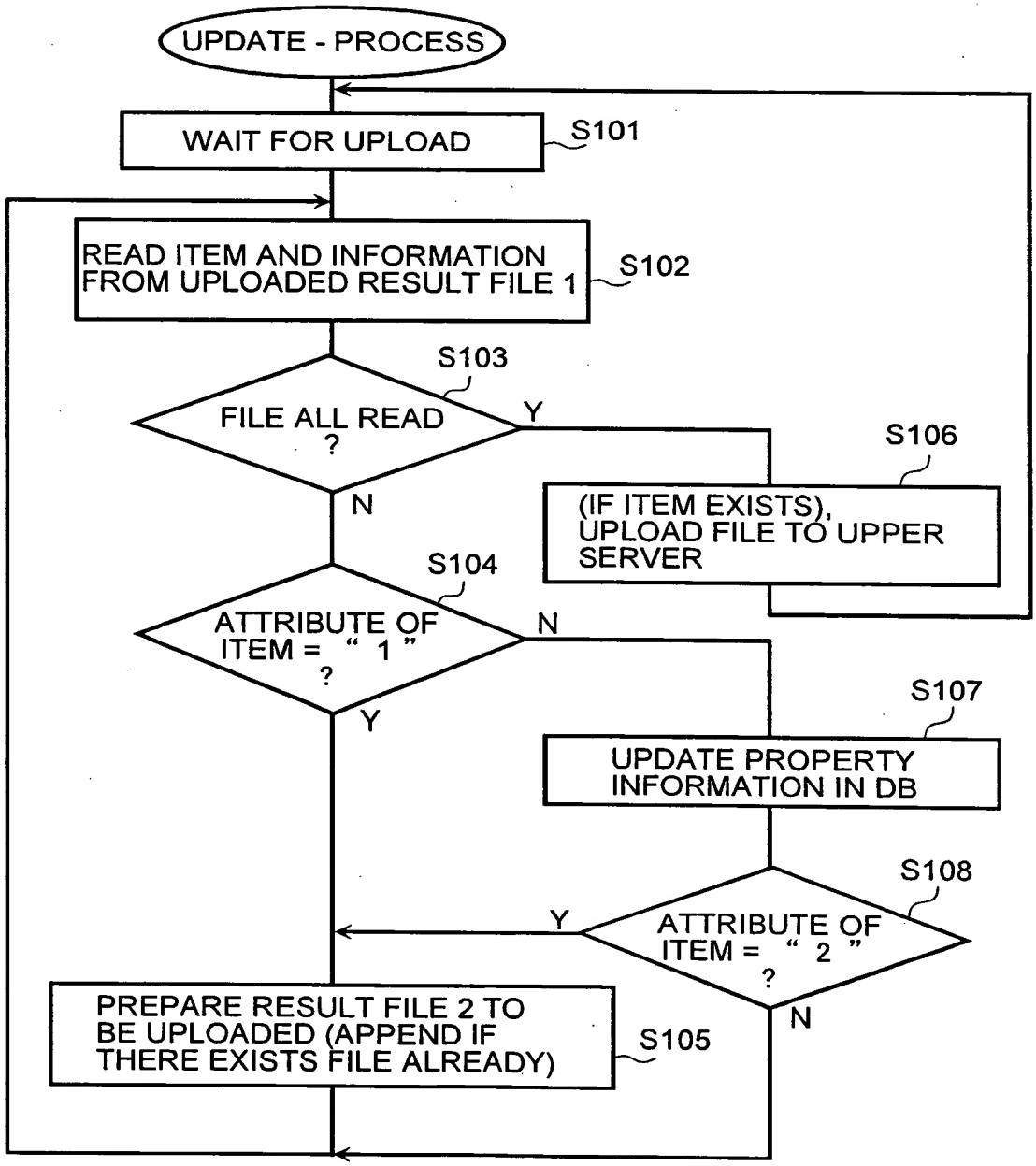

UPDATE - PROCESS
WAIT FOR UPLOAD
S101
READ ITEM AND INFORMATION FROM UPLOADED RESULT FILE 1
S102
S103
FILE ALL READ ?
Y
N
S106
(IF ITEM EXISTS), UPLOAD FILE TO UPPER SERVER
S104
ATTRIBUTE OF ITEM = " 1 " ?
N
Y
S107
UPDATE PROPERTY INFORMATION IN DB
S108
ATTRIBUTE OF ITEM = " 2 " ?
Y
N
PREPARE RESULT FILE 2 TO BE UPLOADED (APPEND IF THERE EXISTS FILE ALREADY)
S105

FIG.18

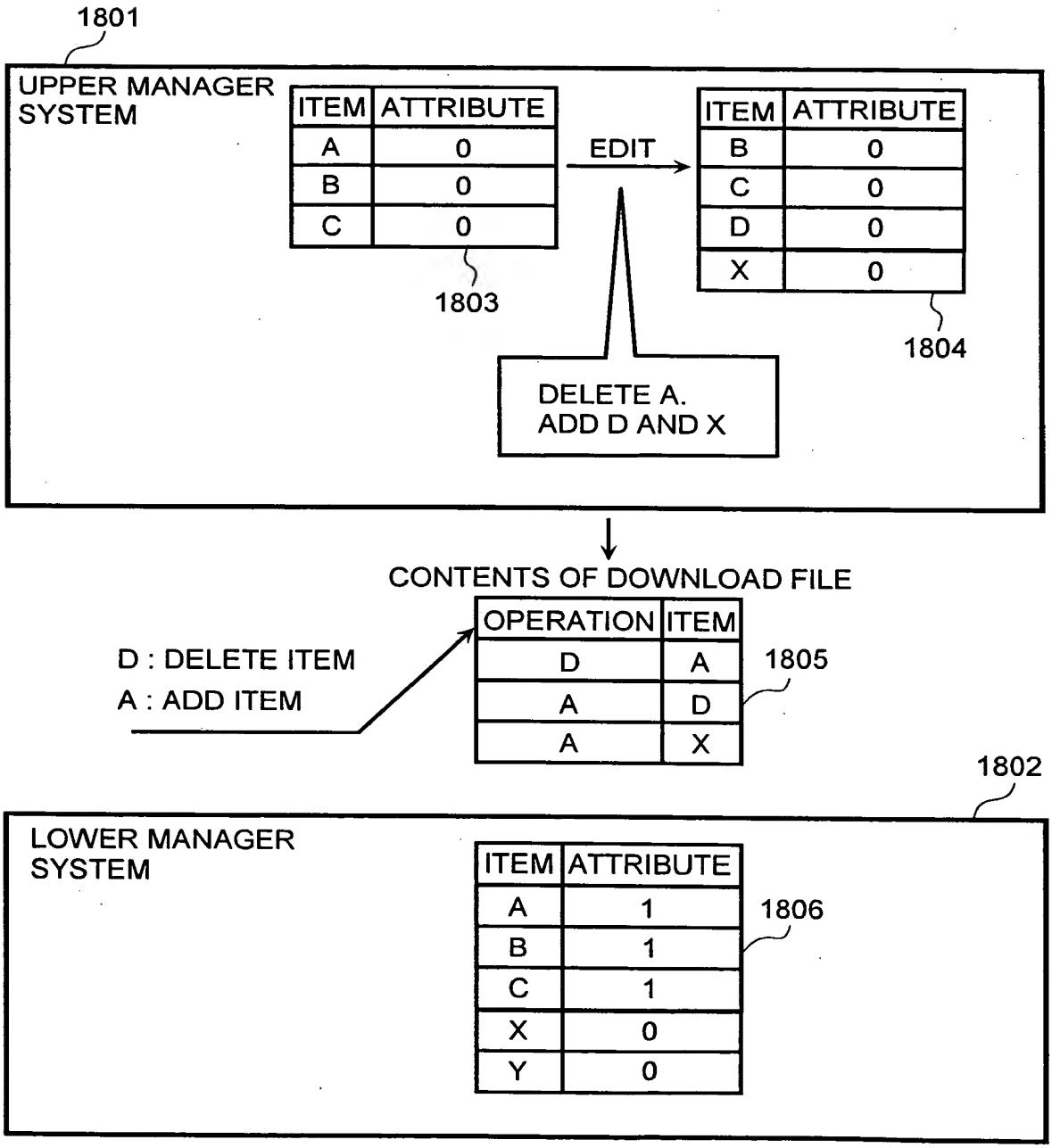

1801
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
1803
EDIT
ITEM
ATTRIBUTE
B
0
C
0
D
0
X
0
1804
DELETE A.
ADD D AND X
CONTENTS OF DOWNLOAD FILE
D : DELETE ITEM
A : ADD ITEM
OPERATION
ITEM
D
A
A
D
A
X
1805
1802
LOWER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
1
B
1
C
1
X
0
Y
0
1806

FIG.19

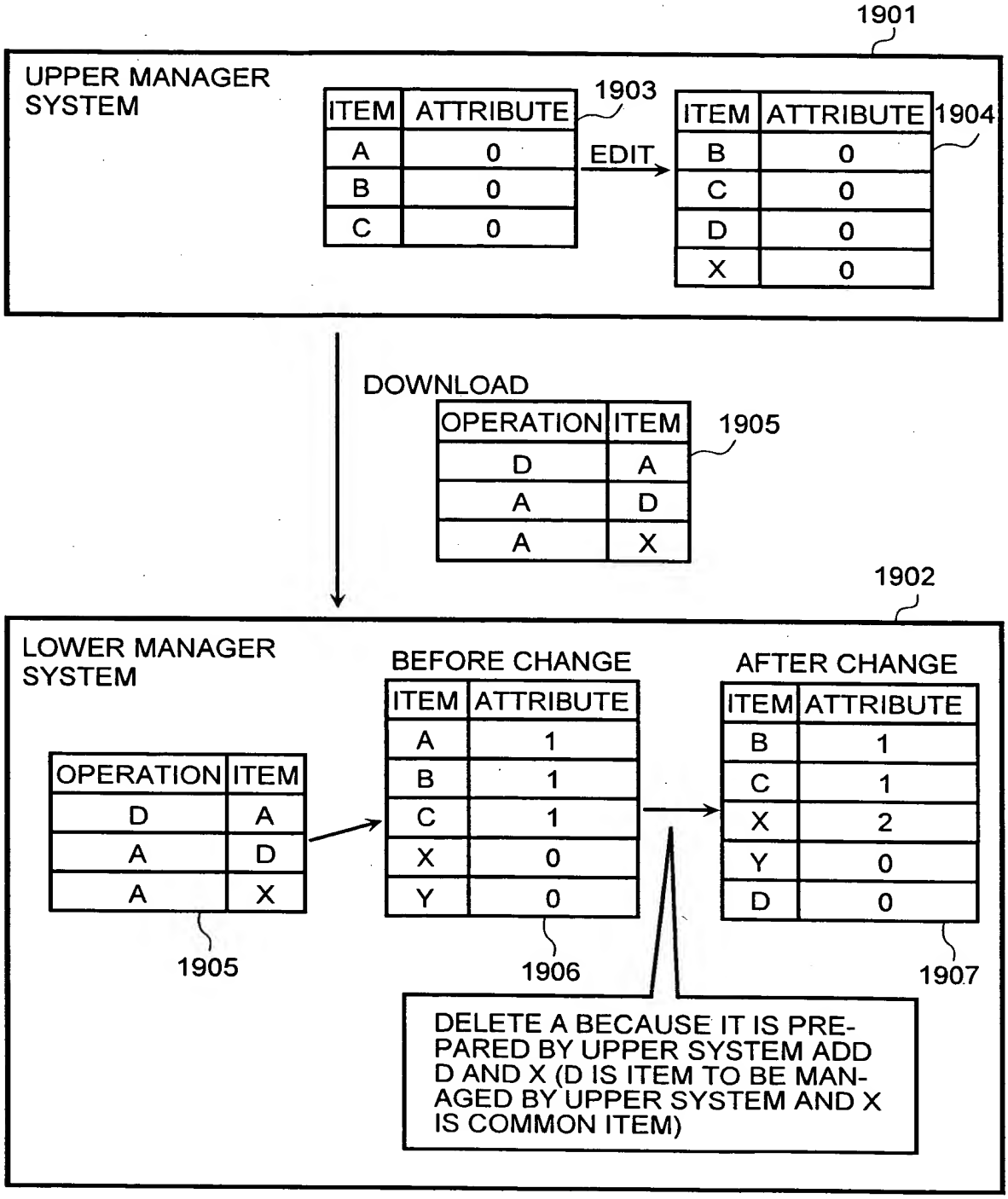

1901
UPPER MANAGER SYSTEM
ITEM
ATTRIBUTE
A
0
B
0
C
0
1903
EDIT
ITEM
ATTRIBUTE
B
0
C
0
D
0
X
0
1904
DOWNLOAD
OPERATION
ITEM
D
A
A
D
A
X
1905
1902
LOWER MANAGER SYSTEM
BEFORE CHANGE
ITEM
ATTRIBUTE
A
1
B
1
C
1
X
0
Y
0
AFTER CHANGE
ITEM
ATTRIBUTE
B
1
C
1
X
2
Y
0
D
0
OPERATION
ITEM
D
A
A
D
A
X
1905
1906
1907
DELETE A BECAUSE IT IS PREPARED BY UPPER SYSTEM ADD D AND X (D IS ITEM TO BE MANAGED BY UPPER SYSTEM AND X IS COMMON ITEM)

FIG.20

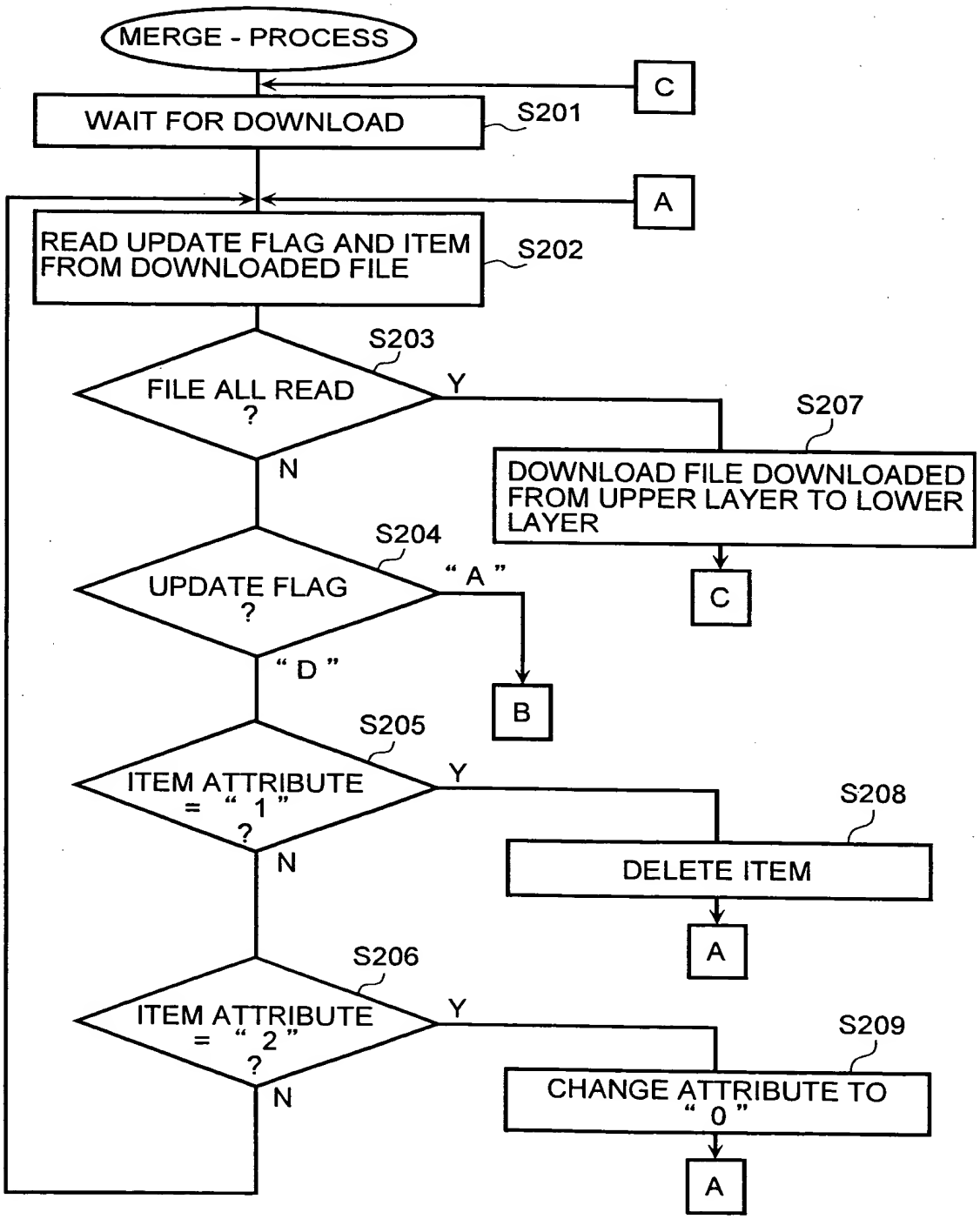

MERGE - PROCESS
C
WAIT FOR DOWNLOAD
S201
A
READ UPDATE FLAG AND ITEM FROM DOWNLOADED FILE
S202
S203
FILE ALL READ ?
Y
N
S207
DOWNLOAD FILE DOWNLOADED FROM UPPER LAYER TO LOWER LAYER
C
S204
UPDATE FLAG ?
" A "
" D "
B
S205
ITEM ATTRIBUTE = " 1 " ?
Y
N
S208
DELETE ITEM
A
S206
ITEM ATTRIBUTE = " 2 " ?
Y
N
S209
CHANGE ATTRIBUTE TO " 0 "
A

FIG.21

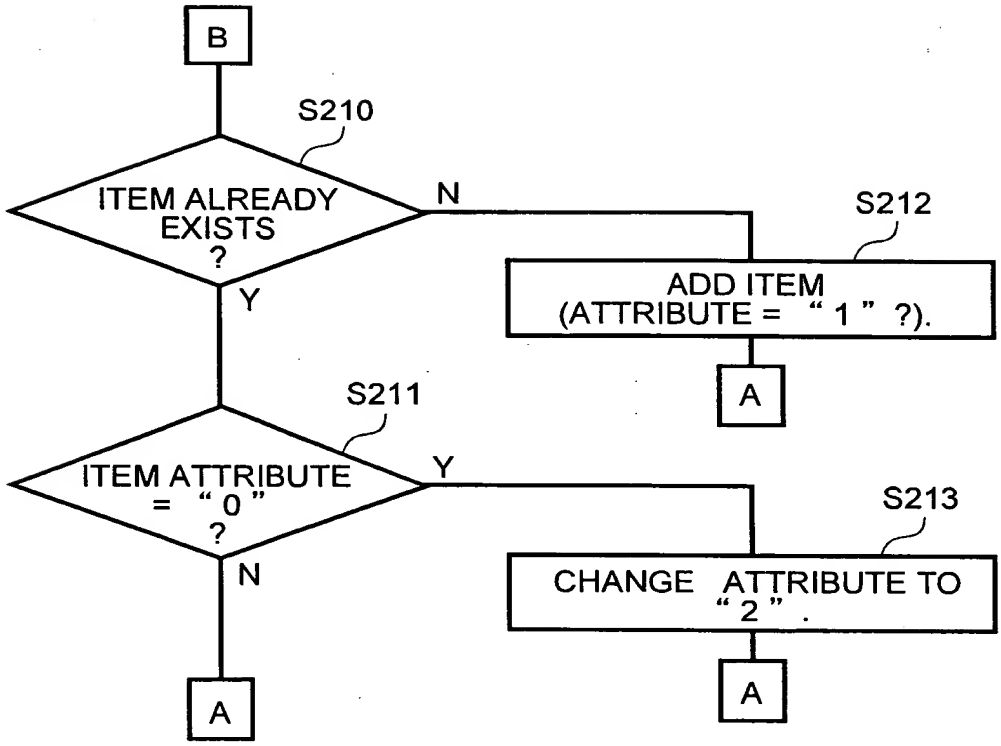

B
S210
ITEM ALREADY EXISTS ?
N
Y
S212
ADD ITEM (ATTRIBUTE = " 1 " ?).
A
S211
ITEM ATTRIBUTE = " 0 " ?
Y
N
S213
CHANGE ATTRIBUTE TO " 2 " .
A
A

FIG.22

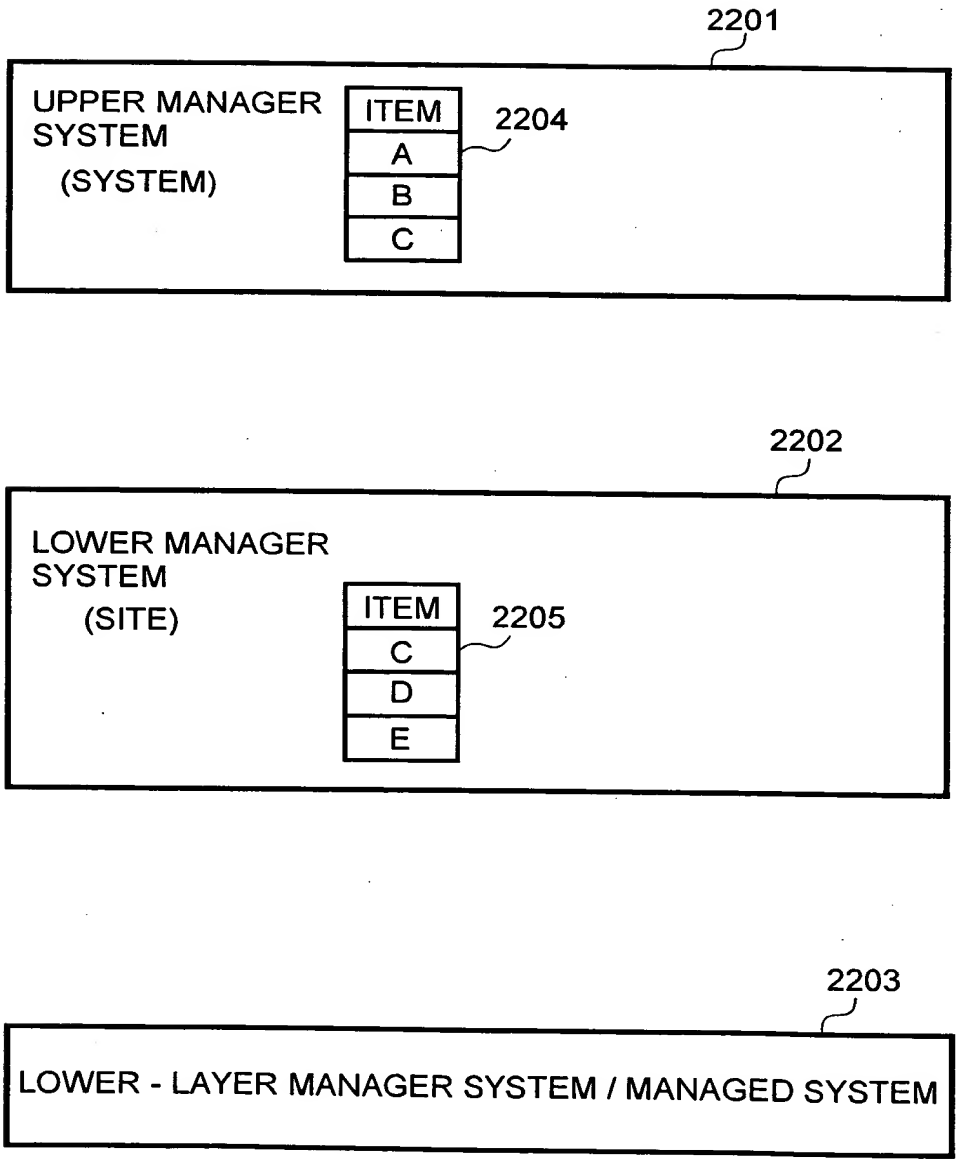

2201
UPPER MANAGER SYSTEM
(SYSTEM)
ITEM
A
B
C
2204
2202
LOWER MANAGER SYSTEM
(SITE)
ITEM
C
D
E
2205
2203
LOWER - LAYER MANAGER SYSTEM / MANAGED SYSTEM

FIG.23

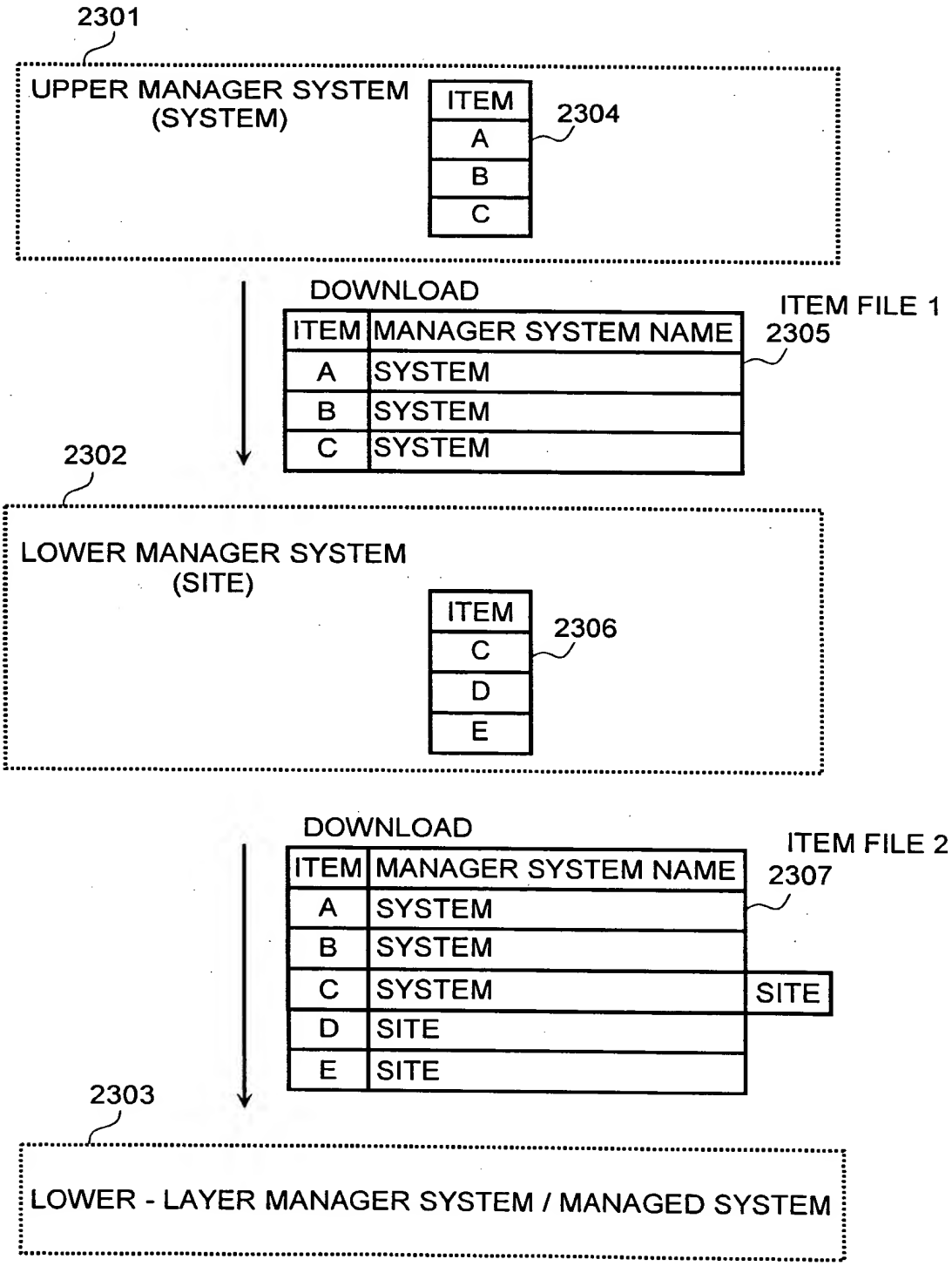

2301
UPPER MANAGER SYSTEM
(SYSTEM)
ITEM
A
B
C
2304
DOWNLOAD
ITEM FILE 1
2305
ITEM
MANAGER SYSTEM NAME
A
SYSTEM
B
SYSTEM
C
SYSTEM
2302
LOWER MANAGER SYSTEM
(SITE)
ITEM
C
D
E
2306
DOWNLOAD
ITEM FILE 2
2307
ITEM
MANAGER SYSTEM NAME
A
SYSTEM
B
SYSTEM
C
SYSTEM
SITE
D
SITE
E
SITE
2303
LOWER - LAYER MANAGER SYSTEM / MANAGED SYSTEM

FIG.24

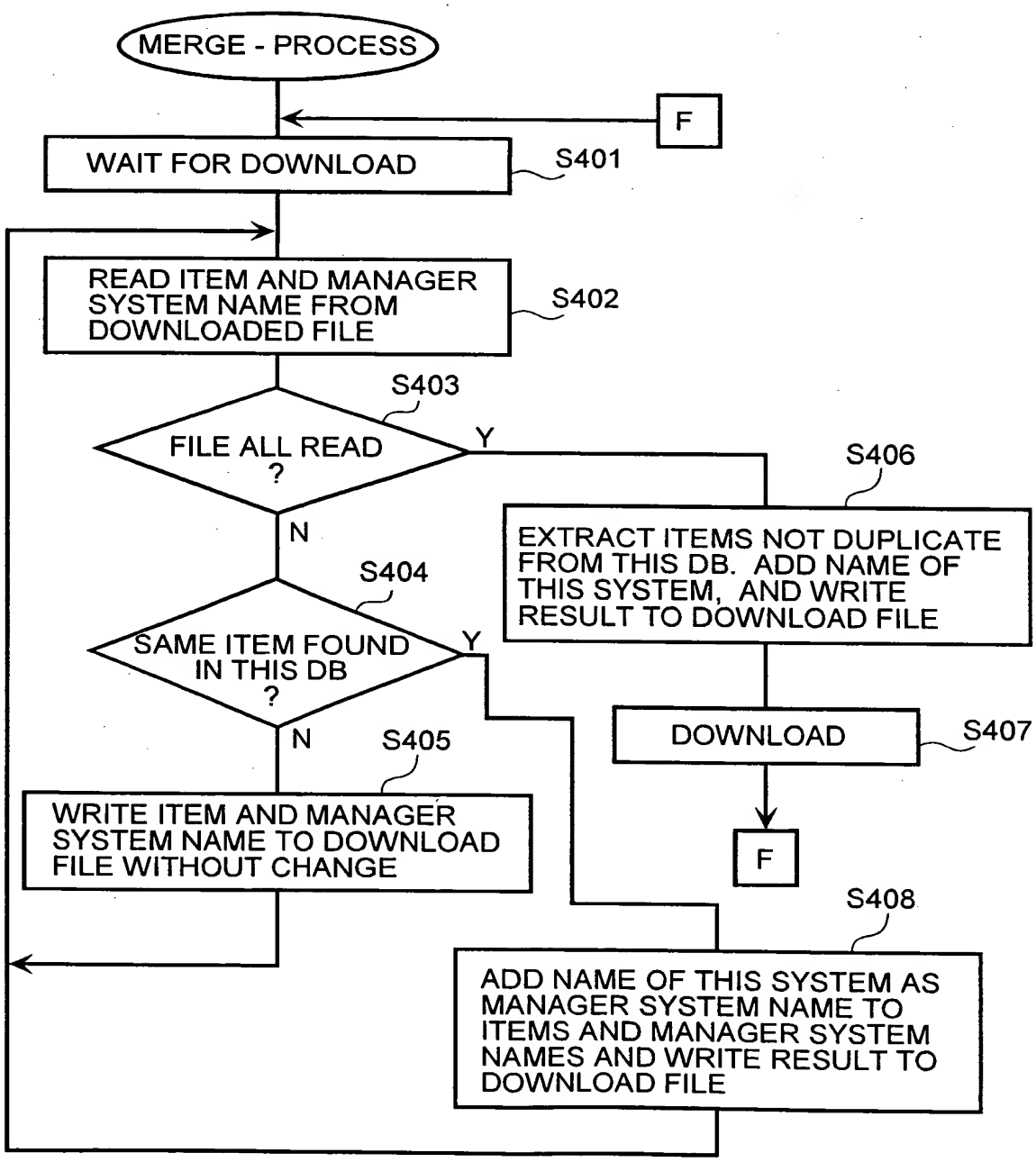

MERGE - PROCESS
F
WAIT FOR DOWNLOAD
S401
READ ITEM AND MANAGER SYSTEM NAME FROM DOWNLOADED FILE
S402
S403
FILE ALL READ ?
Y
N
S406
EXTRACT ITEMS NOT DUPLICATE FROM THIS DB. ADD NAME OF THIS SYSTEM, AND WRITE RESULT TO DOWNLOAD FILE
S404
SAME ITEM FOUND IN THIS DB ?
Y
N
S405
WRITE ITEM AND MANAGER SYSTEM NAME TO DOWNLOAD FILE WITHOUT CHANGE
DOWNLOAD
S407
F
S408
ADD NAME OF THIS SYSTEM AS MANAGER SYSTEM NAME TO ITEMS AND MANAGER SYSTEM NAMES AND WRITE RESULT TO DOWNLOAD FILE

FIG.25

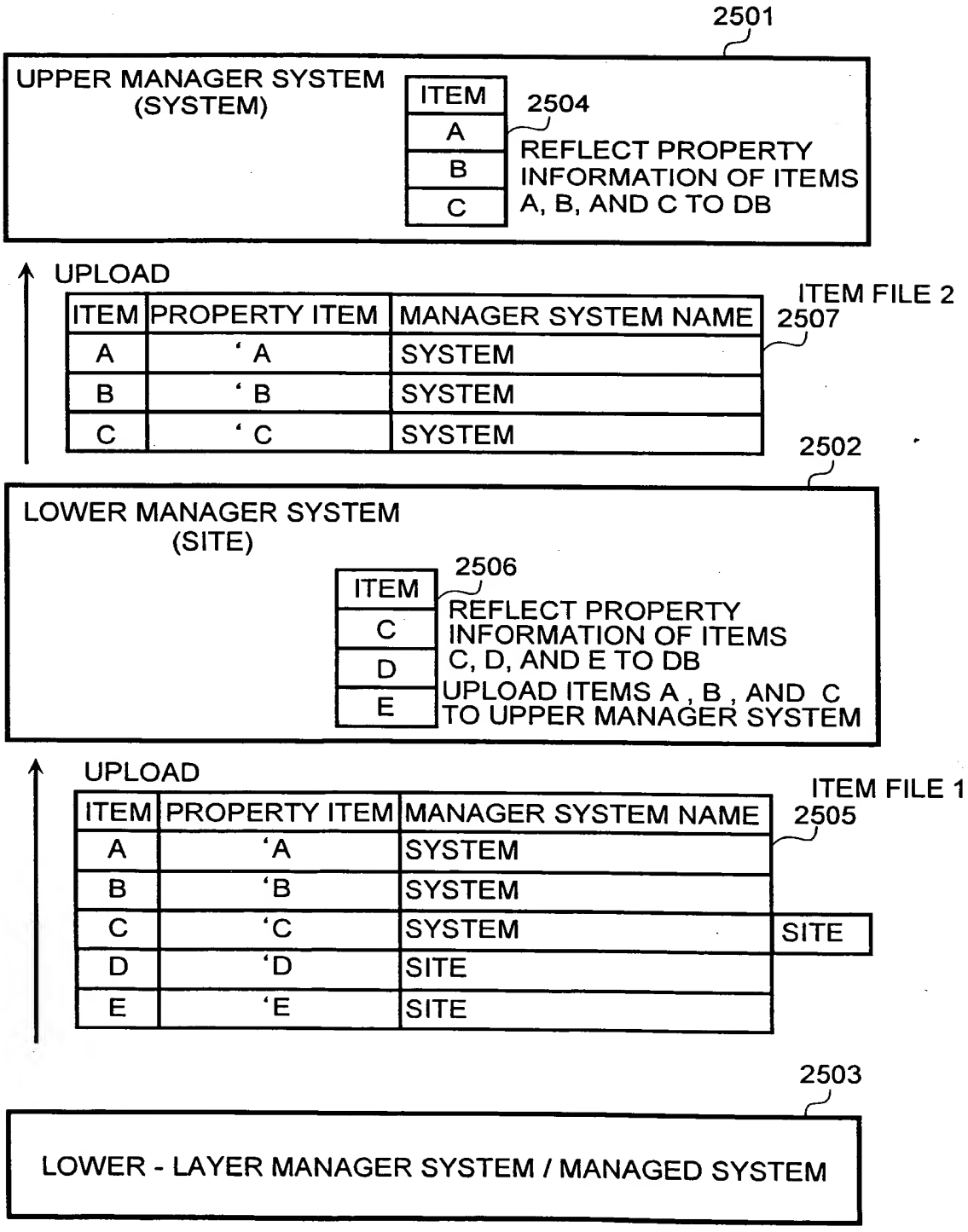
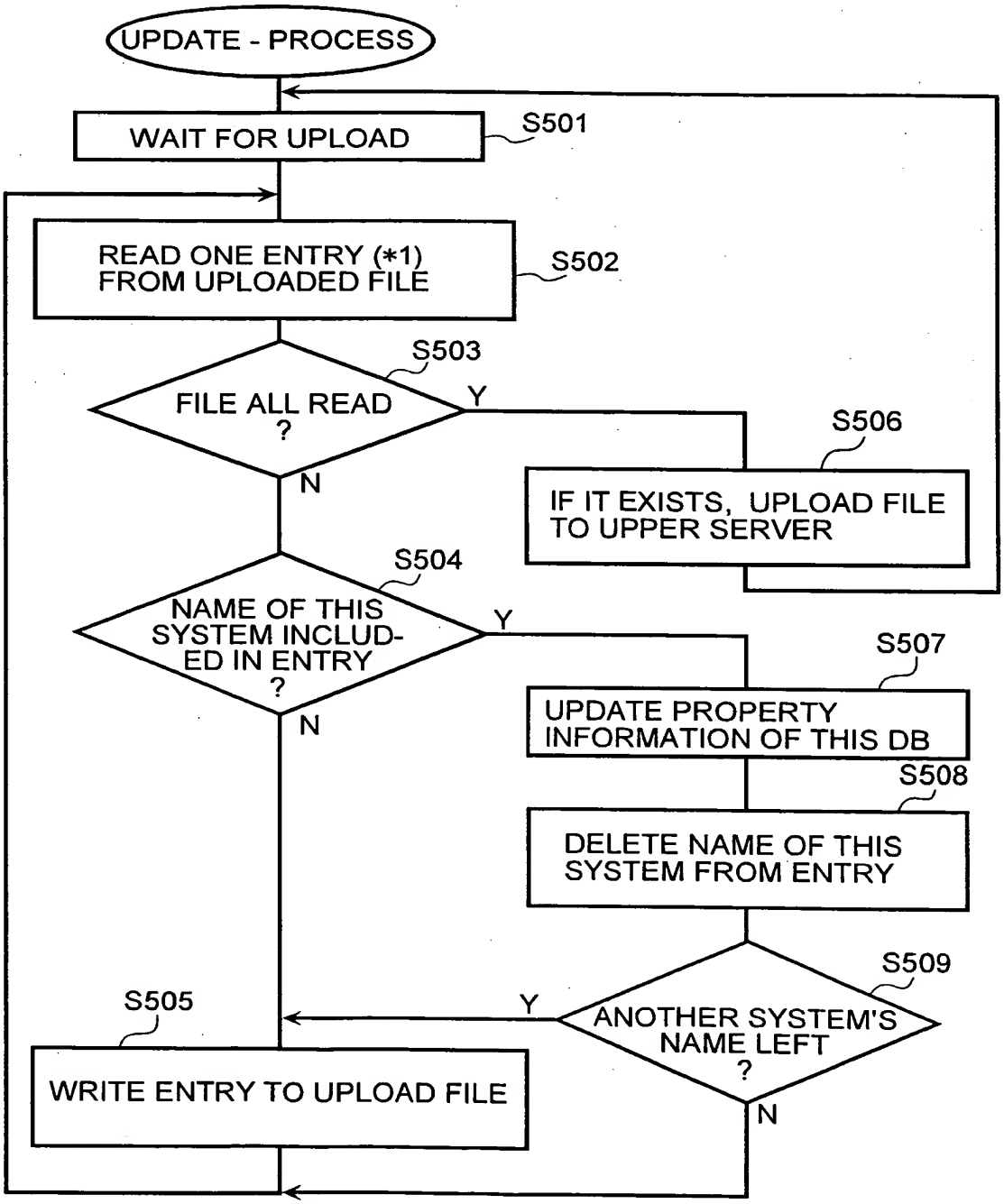

2501
UPPER MANAGER SYSTEM
(SYSTEM)
ITEM
A
B
C
2504
REFLECT PROPERTY INFORMATION OF ITEMS A, B, AND C TO DB
UPLOAD
ITEM FILE 2
2507
ITEM | PROPERTY ITEM | MANAGER SYSTEM NAME
A | ' A | SYSTEM
B | ' B | SYSTEM
C | ' C | SYSTEM
2502
LOWER MANAGER SYSTEM
(SITE)
2506
ITEM
C
D
E
REFLECT PROPERTY INFORMATION OF ITEMS C, D, AND E TO DB
UPLOAD ITEMS A , B , AND C TO UPPER MANAGER SYSTEM
UPLOAD
ITEM FILE 1
2505
ITEM | PROPERTY ITEM | MANAGER SYSTEM NAME
A | 'A | SYSTEM
B | 'B | SYSTEM
C | 'C | SYSTEM | SITE
D | 'D | SITE
E | 'E | SITE
2503
LOWER - LAYER MANAGER SYSTEM / MANAGED SYSTEM

FIG.26



*1 ENTRY IS MADE UP OF "ITEM + PROPERTY INFORMATION + MANAGER SYSTEM NAME"

FIG.27

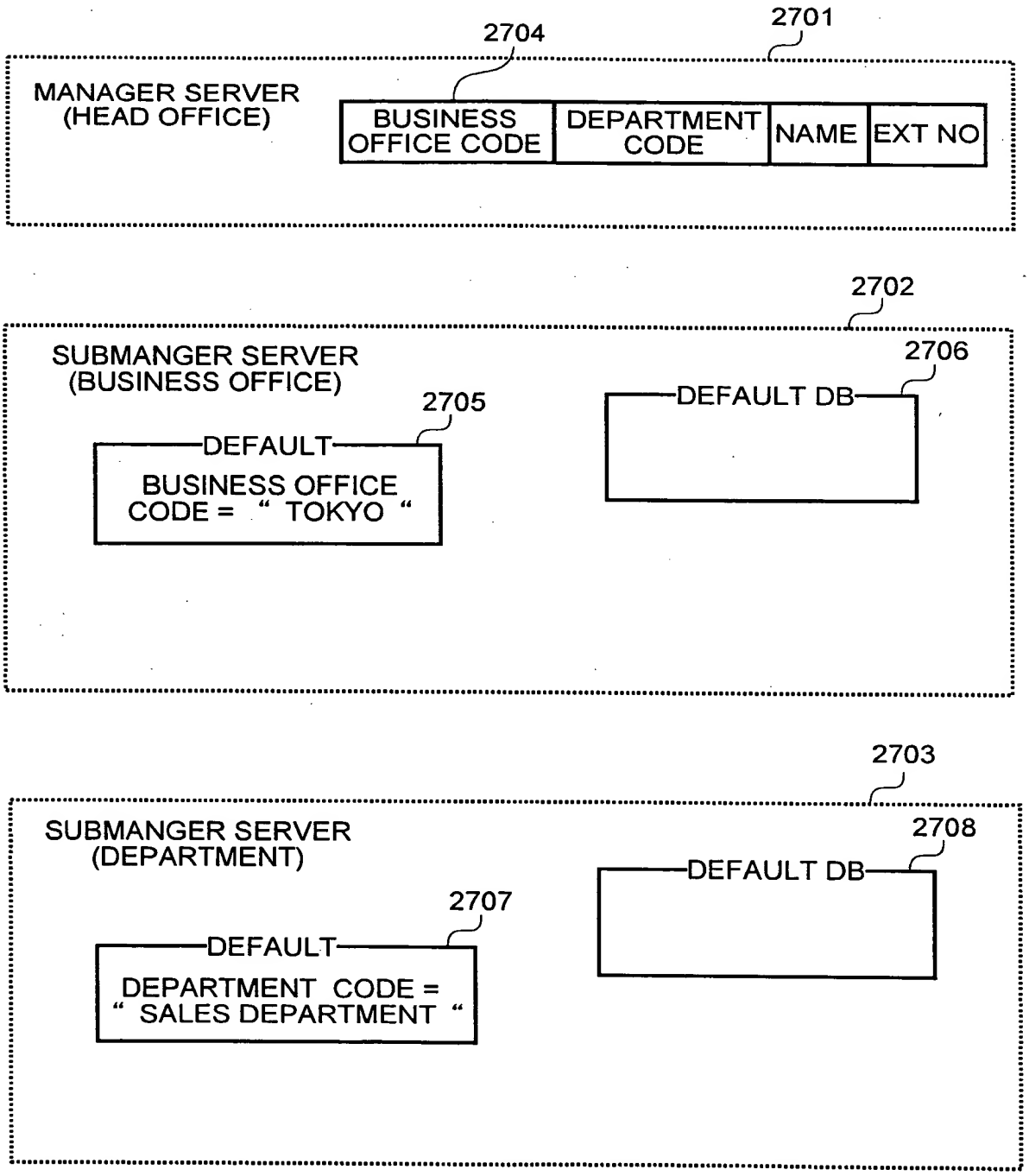

2701
2704
MANAGER SERVER
(HEAD OFFICE)
BUSINESS OFFICE CODE
DEPARTMENT CODE
NAME
EXT NO
2702
SUBMANGER SERVER
(BUSINESS OFFICE)
2706
DEFAULT DB
2705
DEFAULT
BUSINESS OFFICE CODE = " TOKYO "
2703
SUBMANGER SERVER
(DEPARTMENT)
2708
DEFAULT DB
2707
DEFAULT
DEPARTMENT CODE = " SALES DEPARTMENT "

FIG.28

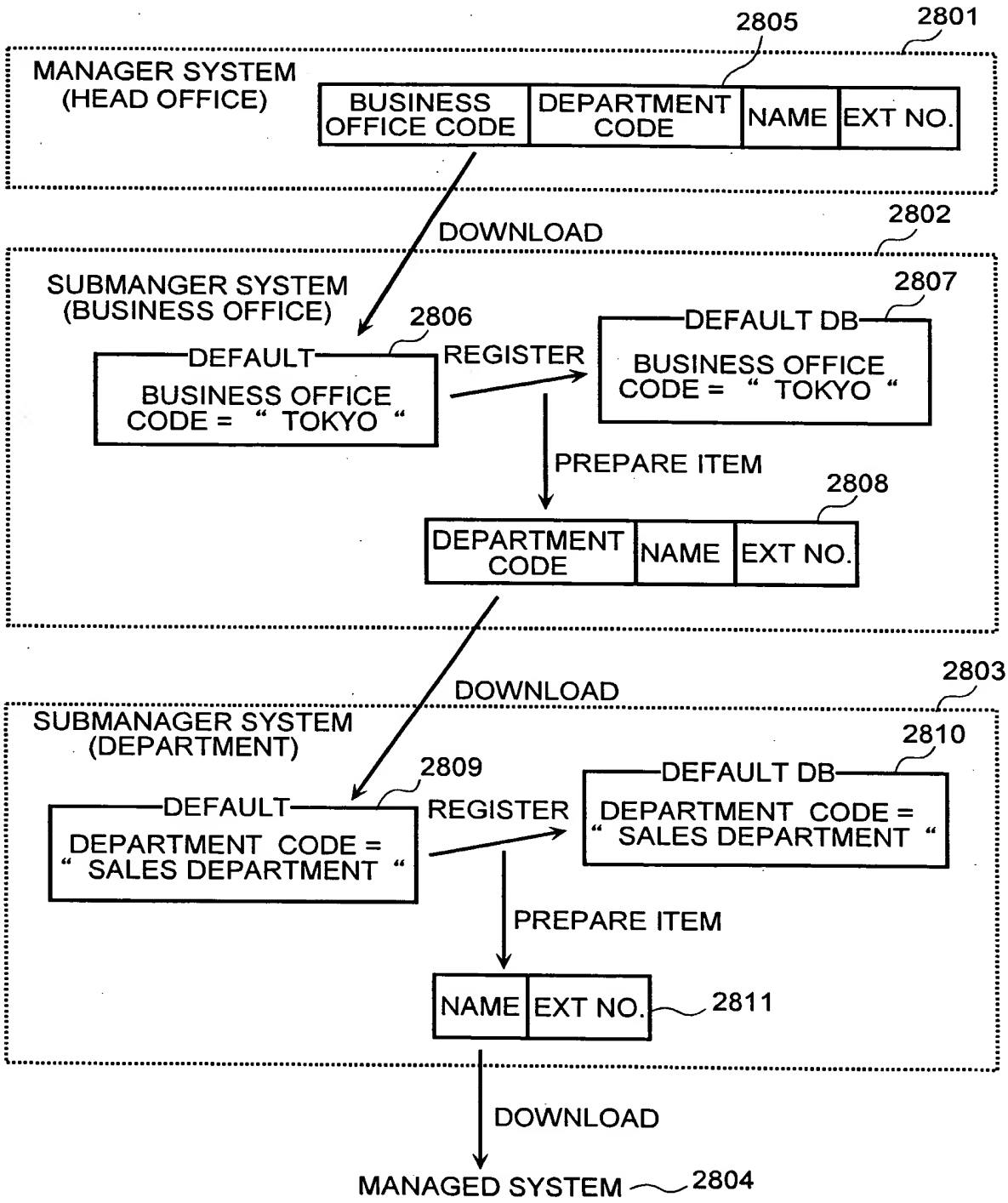
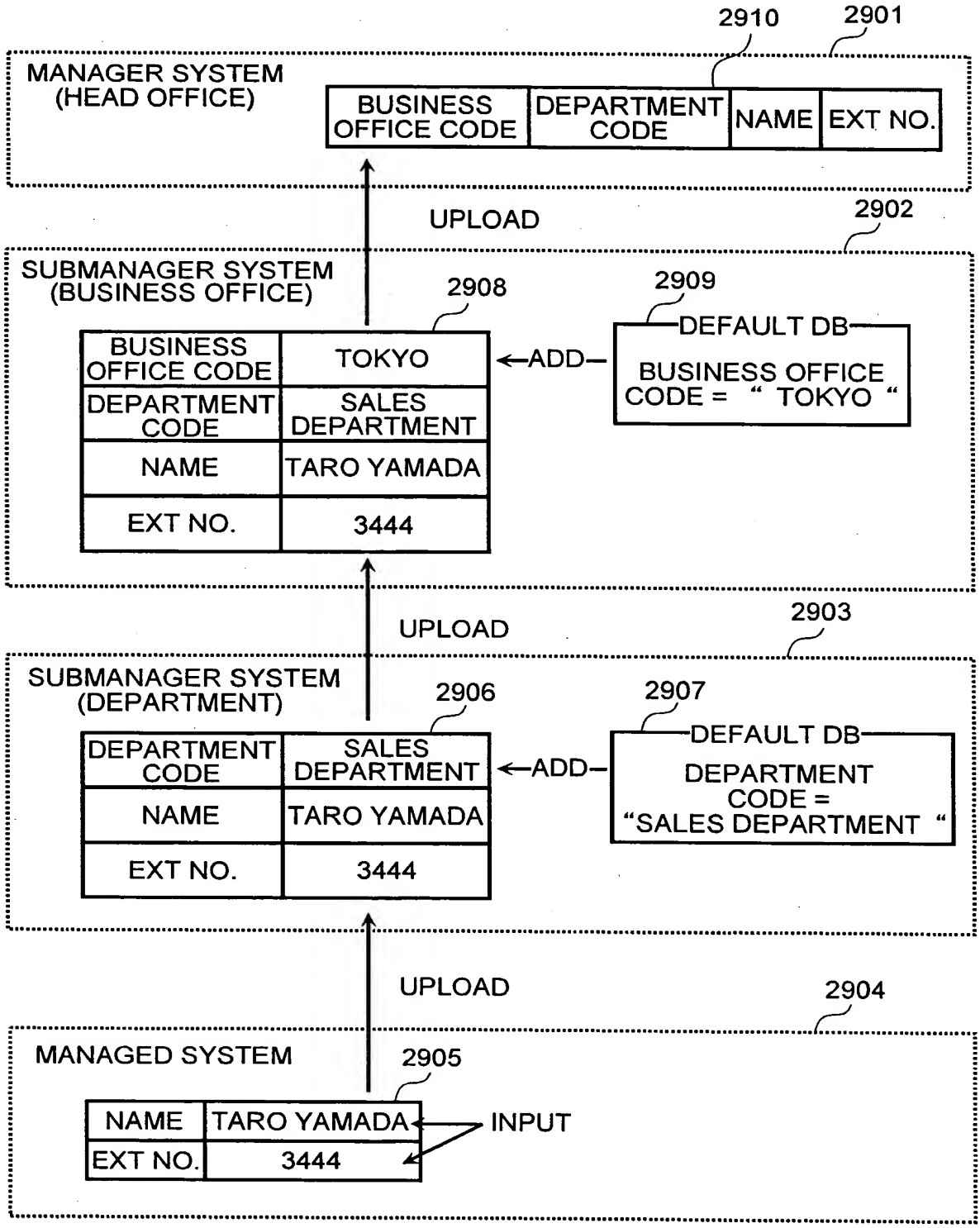

2805
2801
MANAGER SYSTEM
(HEAD OFFICE)
BUSINESS OFFICE CODE
DEPARTMENT CODE
NAME
EXT NO.
DOWNLOAD
2802
SUBMANGER SYSTEM
(BUSINESS OFFICE)
2807
2806
DEFAULT
BUSINESS OFFICE CODE = " TOKYO "
REGISTER
DEFAULT DB
BUSINESS OFFICE CODE = " TOKYO "
PREPARE ITEM
2808
DEPARTMENT CODE
NAME
EXT NO.
DOWNLOAD
2803
SUBMANAGER SYSTEM
(DEPARTMENT)
2810
2809
DEFAULT
DEPARTMENT CODE = " SALES DEPARTMENT "
REGISTER
DEFAULT DB
DEPARTMENT CODE = " SALES DEPARTMENT "
PREPARE ITEM
NAME
EXT NO.
2811
DOWNLOAD
MANAGED SYSTEM
2804

FIG.29


2910
2901
MANAGER SYSTEM
(HEAD OFFICE)
BUSINESS OFFICE CODE
DEPARTMENT CODE
NAME
EXT NO.
UPLOAD
2902
SUBMANAGER SYSTEM
(BUSINESS OFFICE)
2908
2909
DEFAULT DB
BUSINESS OFFICE CODE
TOKYO
DEPARTMENT CODE
SALES DEPARTMENT
NAME
TARO YAMADA
EXT NO.
3444
ADD
BUSINESS OFFICE CODE = " TOKYO "
UPLOAD
2903
SUBMANAGER SYSTEM
(DEPARTMENT)
2906
2907
DEFAULT DB
DEPARTMENT CODE
SALES DEPARTMENT
NAME
TARO YAMADA
EXT NO.
3444
ADD
DEPARTMENT CODE = "SALES DEPARTMENT "
UPLOAD
2904
MANAGED SYSTEM
2905
NAME
TARO YAMADA
EXT NO.
3444
INPUT